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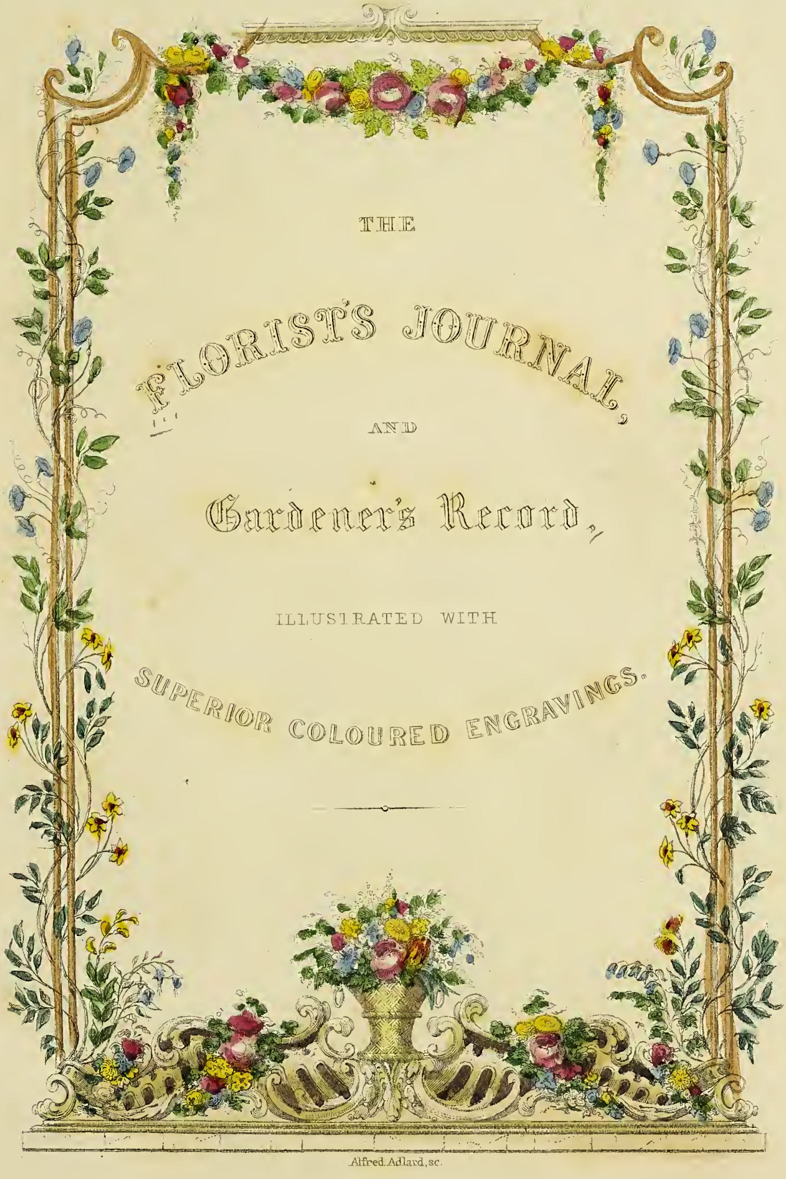

THE

FLORIST'S JOURNAL,

AND

Gardener's Record,

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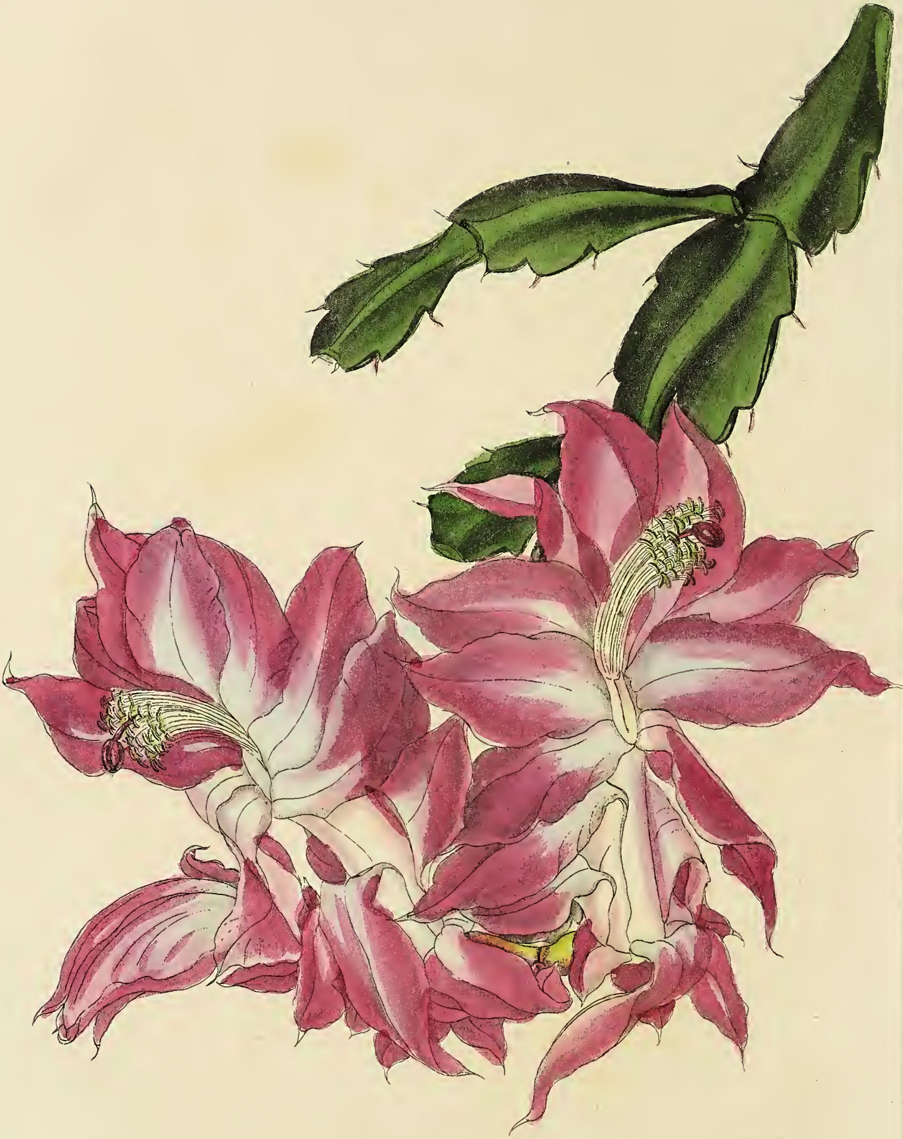

EPIPHYLLUM TRUNCATUM VAR: VIOLACEUM.

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PHENOMENA OF VEGETATION.

WHAT is a plant? Philosophically considered, this question is calculated to awaken reflections at once interesting, comprehensive, and important: it has long occupied the attention of many, even master-minds, without very definite conclusions being arrived at, and may be still considered as disputable matter, so intimately blended are the separable distinctions which bound the three kingdoms of animate and inanimate nature. That there are limits to be assigned to either animal, vegetable, or mineral existence is incontrovertibly apparent; and, therefore, to define the extent of either, can only require sufficient data on the subjects relative to the question—information, however, that our yet limited knowledge of the lower orders of creation, does not furnish with sufficient accuracy to render the matter properly determinable. The definition of Linnæus, that, "Stones grow; plants grow and live; animals grow, live, and feel," immeasurably in advance, as it was, of all previous attempts, is yet unsatisfactory: and every additional insight that we gain of these obscure territories shows it to be more and more incorrect. It is true, that mineral bodies, if they do not grow, in the ordinary sense of the word, extend by the attraction and adhesion of new parts, so as to form an increased volume of essentially the same substance; but it is in the limits of the vegetable and animal forms, that the definition fails, and here is the contestible point: for where is the evidence to determine between some supposed organic, and other inorganic forms, much less between sentient and insentient bodies: there are plants that move, and animals that do not, minerals that project branches and even foliated parts, and plants devoid of either, individuals of the latter which evince a susceptibility of feeling, and living bodies of the animal portion of created matter, quite insensate even to violence, in so far as demonstrable motion is concerned. Other recent definitions are found to fail on application to nearly the same extent; and probably the only mode of determining with certainty between the two organic divisions, is by the action of fire, as animal bodies emit when burning a phosphoric odour, which is not present in vegetable matter.

Pass we now to the consideration of the development of the higher orders of vegetation: phenomena which must excite our utmost admiration, at its unerring constancy and delicate, yet efficient action; sufficient in its complicated parts and beautiful order, to oblige the most callous to acknowledge the existence and presence of an overruling and beneficent power. In the majority of plants, the first principal of vitality is contained in the seed: a germ is there, supported in the interim by the carbon contained in the integuments of the fruit, but which, to develope itself, requires a supply of oxygen to convert the carbon into carbonic acid, the most essential agent in the preservation of vegetable life. This compound gas is formed chiefly by the absorption of water, the hydrogen contained in it being fixed by the plant, and its other component mingling with the carbon, is respired as carbonic acid. A degree of heat, variable according to the natural station of the plant, is also requisite to start this action, which, once commenced, is continued through the existence of the plant. Its first movement of the tissue of the subject is apparent in the protrusion of the root; this, by means of its spongiole or mouth, is enabled to secrete matter from the earth or other medium to which it may be fixed, for the extension and support of the future leaves and branches, increasing its means of supplying with the extended growth of the plant, by the addition of other mouths or feeders, frequently ramifying to an almost incredible degree, a corresponding number of rootlets being kept up with every addition to the foliated parts. In the opinion of some, this action is begun and continued in the opposite direction. Be this as it may, it is certain that the consequences are reciprocal, an addition to the one being productive of a like increase in the other; nor can any injury be suffered by either without its effects being felt by the opposite and dependent parts of the plant. Hence the necessity of preserving with the utmost care the roots of all tender plants in a state of health, that a similar character may be apparent in the part exposed to view.

As all the organs of a plant originally spring from one point, so all their functions appear to be referrible to one vital principle, let this agent be known by whatever term it may—whether it be alimentary fluid, or sap, or any other name—to it, and it alone, may be traced the first formation and continuance of every portion of the plant. Without entering farther into the nature of its substance than our previous brief allusion, we may state, it is derived from the air and earth by the roots, conveyed by ducts to the leaves, there assimilated and returned for the present and future uses of the plant, its development being regulated by external affecting circumstances. When taken back to below the surface of the earth, it is usually emitted in the form of new roots, though even there, probably in consequence of undue atmospheric influences, it will sometimes be seen as foliated shoots or suckers; if retained in the stem or trunk, its presence is perceivable in the increase of wood, and that portion which descends no farther than the branches remain there to furnish other branches, leaves, and flowers, through the next season. It will not alter this view of its action, however different the character of the plant; for, let it be the lofty tree of the forest, or the humblest herb, the first secretions may be reasonably assigned to the formation of new roots, the next to the extension of the principal or intermediate parts, and the last to the production of leaves and flowers, and the consequent increase of the species, the true end and object of all created matter. Applied in a cultural sense, the necessity of attention to the ripening of late growths upon all kinds of flowering plants, becomes apparent; for, without due maturity being given to the latter secretions, it is vain, as experience will prove, to hope for blossoms.

Editor.

EPIPHYLLUM TRUNCATUM VIOLACEUM.

WITH AN ENGRAVING.

A more lovely object than the variety of the old and well-known Epiphyllum truncatum, now portrayed, it would be difficult to select, even from the most extensive range of floral forms: in fact it seems hardly possible to conceive anything more beautiful than the rich, vivid, and varied tints which enamel its flowers, produced too in the greatest profusion, with the smallest amount of skill or attention, and at a season when the meanest of flora's train is greeted with a welcome; it is, beyond comparison, the finest of all winter-flowering plants yet known to us.

There are a few particulars connected with the cultivation of the original species and the present variety, which deserve to be mentioned. It is usual, on account of the naturally prostrate and dense habits of the plant, to assist its development by grafting on some upright, free-growing individual of the same natural family, when it assumes a very graceful, somewhat pendent character; and by these means is elevated to a height which allows more space for the branches, and brings the flowers to a convenient level with the eye, removing the crowded appearance which their weight on the flexile stems causes them to take when produced on dwarf unworked plants. It is very common to select for this purpose a stock from the genus *Pereskia*, P. aculeata being frequently employed because of its free, quick growth, and the readiness with which the Epiphyllum "takes" upon it: but we hold this stock to be objectionable for several reasons. It is a climbing, or more properly a creeping plant, which for itself requires support, and therefore not suited to carry the additional heavy head thus placed upon it; besides the stem of Pereskia does not increase in substance, or but very slowly, after the insertion of the grafts, so that it is no uncommon occurrence to find a large luxuriant mass of the Epiphyllum balanced as it were upon what in the contrast looks like a reed: no proportion existing between the stem and the head; and moreover we have found that plants of this species, when worked upon these stocks, are constitutionally more tender, requiring a much higher temperature, both for growing and the production of flowers, than when grafted on some other species of Cactæ, which we shall presently mention. The only position in which we can conceive the Pereskia most suitable as a stock for this plant, is when the latter is required to ornament the rafters, or roof of a stove, or to twine and cover a pillar, here the flexuose stems of the former give it the advantage, and by its means the Epiphyllum may be made to put forth its splendid blossoms from any position.

The standard we prefer, is that offered either by the stronger species of *Opuntia,* or the erect Cereuses; we have seen magnificent specimens formed in a few years by inserting numerous pieces of the Epiphyllum on a tall stem of *Cereus speciosissimus,* a method we think preferable to the use of a single scion on the summit, as the effect is obtained in so much less time; indeed it is quite possible to form a large plant almost at once, as pieces containing three or four years' growth will unite, with a little care, as readily as the single joint of the preceding year's production. Grafted on either the Cereus just named, or *Opuntia ficus indica,* the common Indian fig, the Epiphyllum seems to gain much of the robust constitution of its bearer, for it will then grow and flower in a warm greenhouse, whereas upon the stock before mentioned, it insists on the high temperature of a stove ere it will manifest either a healthy appearance, or the least symptom of blooming.

The routine culture of this plant is of the simplest description; it delights in a rich soil composed of loam, leaf mould, and reduced manure, mixed up with which should be numerous pieces of small potsherds, and a quantity of them placed beneath the soil at the bottom of the pot, that an effective passage for superfluous water may be secured: as the roots of all cactaceous plants are very impatient of excessive moisture. It will require to have the soil renewed once in a year, and to be liberally watered during the summer and while growing, with a reduction of the quantity until the blooming season is past. Observing to keep it continually either in the stove or the greenhouse, according to the description of standard it may be upon; unless indeed the temperature of the greenhouse in winter is kept very low to suit other plants, when it may be necessary to remove it to a warmer atmosphere to assist in the development of its flowers.

The whole of the individuals composing the natural order Cacteæ, are of such extraordinary and variable habitude as to render their classification extremely difficult, and hence the frequent changes of generic terms, so much to be regretted from the confusion to which it leads; the group to which our present subject belongs has been several times separated and again reunited under different appellations, but on this occasion we have chosen to continue the name by which it is most commonly known. Epiphyllum is derived from *epi*, upon, and *phyllon*, a leaf (Gr.); in allusion to the station of the flowers upon the leaf-like branches. *E. truncatum violaceum* was obtained from Brazil in 1838, and is not yet so generally cultivated as it must be acknowledged to deserve. We were kindly favoured with the specimen for our drawing by our esteemed friend Mr. E. A. Hamp, the successful and scientific gardener at Mawby House, South Lambeth.

EDITOR.

ON RAISING FUCHSIAS FROM SEED.

THE interest attached to the production of seedling flowers of any variable family, is well known to all who have attempted it; and thanks to your exertions the practice is spreading fast, so much so, that extraordinary results may be expected within a few seasons. Allow me then to point out a prevalent error which exists with respect to the management of seedlings of that lovely genus the Fuchsia.

The mistake begins even before the plants are called into existence: in the saving of the seed, the berries too often, to save trouble, are washed to separate the seed from the pulp; and thus many of the finest, notwithstanding the utmost care, are lost: as it is impossible to examine the debris so scrupulously when in water as to be certain there are none contained in it, or as if it were dry; it is therefore a better method to spread out the fruit as they are gathered singly upon paper, and expose them to the sun, to evaporate the juices of the pulp, and afterwards the seed may be collected with the greatest nicety: by inserting the thumb nail into each division or cell of the pericarp, the seeds are laid open to view, and are then easily rubbed out; a little practice will enable any one to do it quickly and with certainty.

The next point with which I am at issue is, the keeping of the seed until spring before it is allowed to vegetate, this must be wrong; as they are loosing vitality throughout all this time, and when they do grow, have lost so much of the season that it is hardly possible to induce one in twenty to bloom the same season.

Will it not be better to sow directly a sufficient quantity is obtained? that the plants may get through the first stage of their infancy, and be in a condition to advance with the increasing genial weather of spring, and thus render their blooming in the following summer a matter of certainty, instead of chance; the little additional trouble which the young seedlings will occasion in the way of potting and watering, will be met by the saving to result with respect to the spring sown ones in the following year: because if we can bloom all the seedlings of the current season, of course it will do away with the necessity of preserving any of the worthless varieties, which otherwise must be kept until they can be proved.

Again: it seems to me a reprehensible practice to stint young plants of this kind, and cannot be the best method of inducing them to bloom, especially as in this case the size of the flowers must be materially deteriorated. I think it will be found far preferable to adopt a liberal treatment, supplying the necessary stimuli, heat, moisture, and change of soil whenever required, and in quantity sufficient to meet every demand; thus the progress of the plants will be an uninterrupted course of vigour, and the resulting bloom most satisfactory. HORTULANUS.

REMARKS ON THE CONSTRUCTION OF PLANT-HOUSES.

THE erection of glazed structures for the cultivation of plants, either as ornaments, or for their usefulness as dietary articles, is becoming of such frequent occurrence, and will probably from the lessened cost of the principal material required, be so extended, that in a few years a greenhouse will be considered a necessary adjunct to every dwelling of the least pretensions; under these circumstances every idea connected with the improvement of their construction will possess its value—especially if it relates to proper economy in the erection—having a view to their ultimate adaptability to the purposes intended.

Plant structures may be considered of three kinds, which, for our present purpose, may be defined as, the ornamental conservatory, the ordinary plant-house, and the forcing-house: of course there are various modifications of each division, the differences being chiefly those of temperature; but for structural description the above are sufficient.

The term conservatory is applied indiscriminately to many widely different structures, from the immense winter garden of Chatsworth to the glazed balcony attached to a drawing-room or boudoir: in the ordinary use of the word, it is a receptacle for plants in bloom, and is generally placed in near proximity to the principal rooms of the dwelling; a situation we think every way suitable, adding as it does to the elegance of the interior decorations, and rendering the enjoyment of the beauty and perfume of its occupants accessible at all times. Being an ornamental erection, the general effect of the building itself, and its relation to surrounding objects, should be studied in the design; its proposed size will also require to be thought of, when determining on the style. As a general rule, a conservatory attached to, or standing so as to be included in the view of the residence, should possess a character according with that of the latter; the outline, roof, ornaments, &c., should be of the same order, simplified to suit their altered position: or they should offer a pleasing contrast, by the extreme lightness which may be made to pervade their several parts. Thus, for example, it would be troublesome, expensive, and ineffectual to attempt to introduce the outline or ornament corresponding with those of a gothic residence; while a lofty circular roof would present an equally noble and appropriate feature, with the additional relief obtained by its contrasting lightness.

An opposite may be instanced, in the case of a plain cottage-built dwelling-house, to which no appendage will be more suitable than the ordinary span or lean-to roof, without ornament of any kind.

Sometimes an unsightly corner or recess, a grievance whereever it is seen, may, by the aid of a few lights judiciously placed, be converted into an object of interest; then, indeed, character and style must give place to convenience or bare possibilities, though it is not often that taste is altogether precluded from showing itself.

In these, and indeed all other horticultural erections, much might be gained, both in appearance and utility, by the employment of smaller timbers; in many even modern houses, light is excluded, and a sombre character given by the tremendous rafters and plates that are used. These we object to as being unsightly and not necessary; if care is taken in the selection of the timbers employing only the best, and it is afterwards properly tied, perhaps half the ordinary dimensions will be found sufficient; however, we shall have more to say on this head presently.

There is another class of houses which belong to the ornamental division, and we are pleased to observe they are occupying increased attention:—these are those in which it is endeavoured to impart an idea of the natural habitats of the plants grown, by the introduction of water rockwork, trees, and other features of out-of-door scenery, and by grouping, or otherwise disposing the plants in the manner most resembling their native positions. This is a field in which the finest tastes may revel without danger of satiety; indeed we feel some diffidence in approaching the subject, so intricate and nice are the distinctions which run through it; to form a complete and proportionate panoramic model of a portion of a country, in the space of a few square yards, is a work which requires imitative talent and sound discriminating taste of no mean order. Still for this branch of garden architecture, as for all others, there are leading principles which should be observed, or the effect falls short of the imaginative anticipations. It should be first determined what kinds of plants are to be grown, and then the physical character of the country of which they are for the most part natives must be closely studied, in order to arrive at a near resemblance to its leading features; and even the *minutiæ* of the erections should be copied from the localities which the plants are derived from. Thus if the group of plants included in the order Cactaceæ are to be cultivated, the characteristic of the house should be a bold, irregular, rocky outline, with but little shade, and a marked absence of foliated vegetation ; though it may be advisable, for the sake of relieving the otherwise arid appearance of the whole, to introduce a small rill of water, near to which will be the most appropriate station for a few phenogamous plants ; these should possess a character remarkable rather for stateliness than for floral beauty, as they are to be received only as secondary embellishments of the scene : while the floor, and every unoccupied spot, should wear the appearance of bare rock or trodden sands.

On the other hand, if the structure is destined for the reception of orchidaceous plants, a totally different aspect should pervade the whole, as they are denizens of the damp forests and alluvial soils of the warmer parts of the world, where the vegetation is all of the richest description. Every endeavour must therefore be directed to the production of a soft, harmonizing scene of oriental grandeur, constituted almost entirely of vegetable forms; the less of cold, bare rock that meets the eye in such a place the better; its appearance being only allowable where absolutely necessary to cover the indispensable wall, or support for the roof. The outline of a house of this kind should be altogether irregular, the ordinary parallelogram being decidedly unsuited : we would have it here compressed into a narrow vista, and again opening on what would appear a dell of indescribable loveliness, with tortuous walks and passages, completely secluded one from another, and from the principal body of the house, allowing the roof in places to ascend to a height sufficient for the tallest plants to be grown, and in others to descend completely to the ground, supporting it where necessary with the trunks of trees, whose branches may be made to take the place of rafters and sash-bars, thus avoiding the unsightly look of walls and incongruous appearance of a natural scene covered by an artificial roof; in short, removing the painful effect of all straight lines. Nor must these ideas be regarded as altogether visionary, for glass is now abundant and may be had of almost any size, and iron, with the aid of ingenuity and a directing taste, may be made to assume any form. Water must not be forgotten; in fact, it should be rather copiously displayed, as being not only in unison with the other embellishments, but also conducive to the health and well-doing of the plants. Its direction and quantity must of course be regulated by the form and size of the entire work; we may, however, remark, that it is not good economy to allow it to take up the best part of the erection, or those places which are covered with the glass roof, as an equally suitable position may be made for it among the hollow rocks which bound the wall-side of the house. Perhaps the most interesting form for its entrance would be that of a cascade: be that as it may, its exit should be obscured among loose stones, overgrown with moss and ferns. The management of the plants will require that hot-water pipes be passed through the main body of the fluid brought into the house, in order to prevent its lessening the general temperature. These are easily concealed among aquatics, and in winter all the water may be withdrawn, if it is thought necessary, when the fixed pipes will do good service by warming the atmosphere around them.

The approaches to all erections of this nature should partake of the character of the interior. Thus, in the two cases mentioned, the first should be entered from a deep cutting or rocky cavern, and the latter from a path winding among open banks of American plants, elevated sufficiently to completely shut out every sign of the structure to which the walk leads.

In the foregoing brief hints we have mentioned only those matters which should occupy attention previous to the commencement of a work of the kind; and here we would particularly caution all operators to avoid exaggerating the finish—the great danger is, that things of this nature may be over-done. Much more might be added on the necessary details, but we leave the subject for the present, to proceed with the consideration of what seems to require some decided alteration in the common plant structure and forcing-house. This will involve, first, the necessity and consequent utility of the heavy rafter, plates, and other timbers in ordinary use; secondly, the question of ventilation; and, thirdly, the saving to be effected if it is possible to adopt a means of ventilating without the wear and tear consequent on the present method.

That timbers considerably less than those generally employed would support the same roof, if the entire of the sashes were fixed, we think no builder will deny: it is the friction and strain which occurs each time they are moved that renders the extra substance necessary. If, then, the proper supply of air (and we really believe the quantity required to be very small) can be supplied without the aid of sliding sashes in the roof, our conclusions will be easily arrived at. To render the matter as plain as possible, we will take the case of both the lean-to and span roof—the most usual forms for all purposes. To ventilate the first without moving any part of the top, is quite easy, if the back wall is independent, that is, does not form the side of another building, to its entire height, it can then be effected by means of sliding shutters, to cover apertures in the wall corresponding with the front sashes. When both of these are open, a current of air will pass from the front of the house out at the back, sufficient even for heaths, or any other plants. An improvement even on this may be managed by introducing similar air-valves in the front walls, beneath the sashes. This height from the floor of the inside is the usual position of the pipes or other heating apparatus; and the air, being admitted immediately on to them, by contact becomes slightly warmed, before it approaches the plants, a matter of some consequence in early growths, whether of plants or vegetables. In the unusual case of the back wall of such a house being occupied, so as to prevent the egress of air, the same object may be gained by causing a portion of each end to be made moveable: a comparatively small sash, hinged in the gable of both ends, has been found to answer all the purposes and quite as effectually, as the sliding down of half a dozen or more in the roof of the house. In the same manner, the span, or double roof may be ventilated: one or both of its gables being open, will carry off heated air in the proportion that the fresh cold air is admitted by the front lights or shutters; and thus every advantage is gained at much less trouble; and it is evident that smaller timbers and fewer of them will suffice, to the great improvement of the stock to be grown and the removal of much anxiety from the mind of the gardener, together with an increase of pleasure, because of the superior condition of the collection, to the proprietor. We have only to add, that a house ventilated in the manner described, or, indeed, by any other, should have a thin blind, fixed on rollers, to be used as occasion may require, in order to intercept the force of a sudden sun-burst, or the intense light of long-continued bright weather. The benefit of this precaution is so well understood, that we need not enlarge on its importance. EDITOR.

GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

Corona. A crown, applied to the cup-like appendages in the interior of the perianth of narcissus, to the disc of some compositæ, and to the dried calyx of apples, pears, &c.

Corpuscle. An indefinite portion of a body, a particle.

Corrosive. Possessing the power of destroying gradually.

Corrugate. Having a rough surface, wrinkled.

Cortical. Of, or belonging to the bark.

Corticate. Covered with bark, coated.

Corymb. A panicle, in which the flowers are nearly all of a level, in consequence of the lower footstalks being longer than those above them.

Corymbose. Arranged in the manner of a corymb; applied equally to the form of the branches as to that of the inflorescens.

Corymbulose. Arranged in many small corymbs.

Costa. A rib, the mid-rib of a leaf, or the elevated ridges of some cacteæ.

Costate. Having projecting lines or ribs.

Cotyledon. The seed-leaf, or envelope of an embryo, projected by the act of germination. The great divisions of the vegetable kingdom in the Jussieun system are regulated by the number of seed-leaves a plant may have; thus the division Monocotyledones have but one, while Dicotyledonous plants have two or more.

Cotyliform Cotyloidens. Shaped like a flower-pan, having a depressed tubular form with a proportionately wide base.

Crassus. Of extraordinary thickness.

Crateriform. Wide-mouthed, shaped like an inverted cone.

Crenæ. Little notches.

Crenate. Having a notched margin, distinguished from 'toothed' by the points of the serratures being rounded.

Crenulate. An excessive state of the crenate.

Crested. Terminating at the apex with an irregular crest-like appendage.

Cretaceous. Of the colour of chalk.

DESCRIPTIVE LIST OF NEW PLANTS.

RANUNCULACEÆ.—*Polyandria Polygynia.*

Anemone japonica. A most beautiful species, not inferior to the Chinese Chrysanthemum, or even the Anemone coronaria of the East. For its introduction to this country the public is indebted to the Horticultural Society, who received it from Mr. Fortune in 1844. That indefatigable collector met with it at Shanghae, the Japanese port of China. It has flowered this autumn in great beauty in the garden of the Society, in a greenhouse, its flowering-stems being nearly two feet high. It may, however, be expected to be better suited to the open border, at least during summer, and it is probable that it will not suffer even from the cold of winter.

According to Siebold, it inhabits damp woods on the edges of rivulets, on a mountain called Kifune, near the city of Miako in Japan, and it is much cultivated by the Japanese for the sake of its beautiful purple blossoms; and, as it grows at considerable elevations on the mountains in the centre of Japan, he infers it will bear even a continental winter.—*Bot. Reg.* 66—45.

OXALIDACEÆ.—*Decandria Pentagynia.*

Oxalis sensitiva. This curious little sensitive plant often comes up among mould received from the East Indies, and, being an annual, will sometimes take possession of the soil in the garden-pots of hothouses, so as to become troublesome. It is found wild over all the tropics of Asia; or at least, if there are several species confounded under the same name, some one or other is there found. The kind under notice was raised in the garden of the Horticultural Society, from seed sent from China by Mr. Fortune; it has small bright green pinnate leaves, and little orange-yellow flowers.—*Bot. Reg.* 68—45.

CYRTANDRACEÆ.—*Diandria Monogynia.*

Rhynchoglossum Zeglanicum. A lovely little plant, sent from Ceylon by Mr. Gardner, with flowers of a bright blue, arranged in long one-sided racemes, and leaves with singular unequal sides, like those of many *Begonia*, and of a peculiar tender green. It is an annual, or at most a biennial, herbaceous, rising about a foot in height; the terminal drooping racemes of pretty campanulate blue and yellow flowers, are very effective.—*Bot. Mag.* 4198.

STERCULIACEÆ.—*Monadelphia Polyandria.*

Reevesia thyrsoidea. This interesting plant is a native of China, and was first made known to botanists through John Reeves, Esq., a gentleman long resident in Canton, distinguished for the many services he rendered to natural history and botany in particular, and in honour of whom this plant is named by Dr. Lindley. It is a shrub rising three or four feet high, with large broadly-lanceolate alternate leaves; the branches are terminated by dense corymbs of beautiful white or cream-coloured flowers. It loves a warm greenhouse, and seems to flower at different seasons of the year.—*Bot. Mag.* 4199.

SCROPHULARINEÆ.—*Didynamia Angiospermia.*

Anthocercis ilicifolia. A perennial species, in colour and general habit nearly allied to the showy Anthocercis littorea; but very distinct and remarkable for its size, often six feet high, and its very long twiggy branches, leafy below, terminating in elongated compound spikes of graceful pendent yellow flowers, the inside of the widely-companulate tube of which is elegantly marked with dark blood-coloured lines. It was first detected at the Swan River Settlement by Mr. Fraser, who speaks of it as general on the river banks. The plant requires a warm greenhouse in winter, but in summer, during the flowering season, a cooler place, with a plentiful admission of air, will be the best suited to it.—*Bot. Mag.* 4200.

SOLANEÆ.—*Pentandria Monogynia.*

Habrothamnus corymbosus. A very handsome species, a native of Mexico, sent to the Royal Gardens of Kew by Mr. Low of Clapton, quite distinct from the *H. fasciculatus.* It is everywhere glabrous, apparently a much taller plant, and with a deep rich rose-coloured corolla of a very different shape, widening upwards, and then suddenly contracted, so as to have an urceolate tube; and having the segments of the corolla much longer acuminated, and at length reflexed. Its growth appears to be much more rapid, and it is more easily cultivated, only requiring the protection of a greenhouse in the winter. In the summer it does best in the open air.—*Bot. Mag.* 4201.

CONVOLVULACEÆ.—*Pentandria Digynia.*

Evolvulus purpuro-cœrulens. A small but most lovely little suffruticose plant, with copious flowers, at first not much unlike those of *Anagallis cœrulea,* but borne upon erect twiggy branches, with small patent or reflexed leaves, and worthy a place in every garden on account of the brilliant colour of its blossoms. It inhabits arid rocks near the sea, in the district of Manchester, Jamaica, and caught the attention of Mr. Purdie, its discoverer, who sent home seeds of it to the Royal Gardens of Kew, by its showy bright blue flowers. A variety has bloomed at Kew, from the same country, with pale blue flowers. It was reared in the stove, and requires to be kept moderately moist. Flowers in July and August.—*Bot. Mag.* 4202.

SCROPHULARIACEÆ.—*Diandria Monogynia.*

Veronica Lindleyana. This, as an elegant ally of *V. speciosa,* does not aspire to the magnificence of that species, but in other respects it has more interesting features. The habit of *V. speciosa* is of a stiff and robust nature; this, on the contrary, is free and elegant. Its flower-spikes are produced in the greatest profusion, and these covered with innumerable delicate white flowers, contrasting with their light purple anthers, produce a charming effect. Mr. Glendinning of the Chiswick Nursery, with whom the plant has lately bloomed, writes: " *Veronica Lindleyana* was raised from seeds sent from New Zealand, in October, 1843, by Mr. T. Cleghorn, formerly a nurseryman in Edinburgh. It was presented to me by my esteemed friend Mr. James McNab, Curator of the Royal Caledonian Horticultural Society's Garden, Edinburgh. It flowered in one of my greenhouses this autumn, for the first time in Europe, at least as far as I am aware; and when shown to the distinguished botanist whose name it bears, he pronounced it to be perhaps a new species. It was exhibited by me in September last before the Horticultural Society of London, and obtained the Banksian medal. It was then loaded with innumerable spikes of its elegant white flowers, and will sometimes produce as many as twelve spikes on one short branch. It should be grown in a moderately rich soil, composed of three parts sandy loam and one part leaf-mould, and allowed plenty of pot-room; being of the easiest possible culture, and a perfectly hardy greenhouse plant, it is likely to be extensively cultivated."—*Pax. Mag. Bot.*

ORCHIDACEÆ.—*Gynandria Monandria.*

Stanhopea inodora. A species imported from Mexico by Messrs. Loddiges, and flowered by them in 1843. It may be stated to have the inflorescence of *S. insignis,* the form of *S. graveolens,* and the colour of *S. saccata,* without its dots. If *S. insignis* inhabited the same country as *S. graveolens,* one might fancy the *S. inodora* to be a mule between the two. It has nearly white flowers, the sepals and petals being slightly stained with yellow; and the lip is white, except near the base, where it is bright yellow, with two faint spots of crimson in the interior.—*Bot. Reg.* 65—45.

Govenia fasciata. One of the prettiest of the genus, whose sepals and petals are beautifully marked by fine broken bands of crimson upon a clear yellow ground. The long bracts, thin narrow spike of flowers, and oblong lip, are the marks by which it is best recognized. The leaves are about a foot long and three inches wide. It was found by Mr. Linden, in July 1842, in the damp forests of Venezuela, at a height of 5000 feet above the sea, and was flowered by Mr. Rucker in 1843.—*Bot. Reg.* 67—45.

Lælia peduncularis. The flowers of this species are of one uniform deep rose-colour, a little heightened at the lower part of the lip, and they droop gracefully from the end of a slender elastic scape. The unusually long peduncles add to its elegant appearance. It approaches most nearly to the Lælias rubescens and acuminata. From the former it differs in its lip having none of the hairiness of that species, and its flowers being much more closely arranged; from the latter, in neither its petals nor lip being wavy and sharp-pointed; and from both, in its very large whole-coloured flowers, flat jagged petals, short recurved lip-lobes, and very long flower-stalks.

It was introduced from Mexico about the year 1841, by Mr. Barton, of Birmingham.—*Bot. Reg.* 69—45.

PRUNING THE GOOSEBERRY AND CURRANT IN SUMMER.

The advantages derivable from a proper thinning of the new shoots on wall fruit-trees, are manifest and well understood; by these means we are enabled to increase and direct the power of the vital action of the trees in a manner most conducive to the production of fine, well-flavoured fruit. Why then should not a similar degree of excellence be imparted by extending the system to other kinds of fruit? The currant and gooseberry will be found most grateful recipients of a like attention, for under this treatment their berries are wonderfully increased in size, are earlier in perfection, and have a superior delicacy of flavour. Let me then advise all who esteem them to try it for themselves in the course of the ensuing summer, and state the result; the little trouble occasioned cannot be taken into account, as it is so much saved in the winter's pruning.

The method I would recommend for currants, is to begin thinning as soon as the bearing branches can be distinguished; at that time stop back all the shoots that do not promise to have fruit, to within a couple of buds of their origin; these will produce in the course of the summer from the eyes that are left, short spurs, always valued for their prolific character; this first thinning will afford a good supply of air and light to the bearing shoots, and enable them to set and swell off their berries in much less time than would be required if left to themselves in the usual manner: then about the time the fruit is half-grown, pinch out the points of the remaining growths, and clear away all small wood and leaves that may intercept the rays of the sun or air, and the fruit will be found to increase daily to an amazing extent. Gooseberries will require to have all superfluous shoots taken completely out, instead of being stopped as is recommended for the currant, and with a judicious selection of the berries to be gathered in a green state, will be vastly improved without further trouble.

R. TOVEY.

PLANTING.

As February may be considered the commencement of the spring plant season, when most people have additions of some kind to make, a few short hints on the subject may not be without their value.

The first point requiring attention is to guard the newly removed plants from the drying influences of the air; nothing retards their re-establishment more than this, it delays the healing of the wounds received in taking up, and consequently prevents for a time the formation of new rootlets. The matter next in importance, after taking off all bruised portions of the roots, is to carefully spread them out in an equilateral manner, that the whole of the nutriment in the soil may be gathered from every direction, that each root may have its due and uninterrupted share, and that the plant may have an equal support on every side. This is an often-repeated direction, but seldom attended to, and yet of the first consequence to the future welfare of the subject. In the operation of planting, let the soil be thoroughly stirred for full three times the width of the hole required, that a suitable and pervious medium may be formed for the reception of the young fibres, and when the tree or shrub is once properly placed, avoid treading on the ground more than is indispensable. I greatly prefer shaking the soil gradually between the roots, to the common practice of throwing on a quantity, and forcing it into its place by the action of the feet,—a reprehensible method, that not unfrequently leaves cavities beneath, and in a retentive soil forms a puddled surface quite impenetrable to either air or water. For all ordinary purposes, a common stake driven into the ground is support enough against the winds; but if the subject is a large one, and the usual tripod of stakes be deemed unsightly, the same end may be gained as effectually by interlacing a number of small rods, so as to cover and extend beyond the space occupied by the roots, the ends of these rods to be secured by means of four cross pieces of stouter dimensions, and these again fastened by four stumps, driven into the ground so as to keep the whole close to the earth. In the dry weather of the following summer attention must be paid to the watering of all recently transplanted subjects, and, where it is practicable, much assistance may be given to the plants by shading them from the intense heat of the sun; in all cases a layer of mulch about the bases of the stems will be beneficial, and save a great deal of trouble.

An old Planter.

ON THE GENUS CALOCHORTUS.

There is a class of plants, including many genera of highly ornamental character, that have been long enough in the country to have become common, but which, from some inexplicable cause, are seldom or ever seen in ordinary collections; why this should be is a matter of much astonishment. It cannot arise from any lack of interest in the subjects, for very many might be mentioned of superlative loveliness that are yet included in the number of the neglected; and among them is the Calochortus, the whole of the species of which possess high claims on the culturist's attention, as beautiful ornaments for the greenhouse or open borders through the autumnal months. *C. luteus,* producing yellow flowers, with deep rich spots; *C. nitidus,* purple; *C. splendens,* white, spotted; and the lilac *C. venustus,* are real gems, obtainable too with a very trifling degree of care. They are natives of Columbia and California, and consequently require to be guarded from frosts; their bulbs should be potted in February, using a mixture of peat, loam, and sand, in equal quantities, thrown together in as rough a state as possible; observing at the same time to place an abundant drainage in the pot, as they are impatient of stagnant moisture. Three plants in a good-sized pot will be sufficient, and they should be grown in a cold pit, or a common garden-frame will suffice if properly protected from severe weather. In this position the pots should be plunged to the rims in ashes, as a further protection both from extreme cold and drought, and thus they may remain through the summer months, receiving plenty of air, and an occasional refreshing from the water-pot. On the production of flowers the plants may be removed to any desirable situation, returning them to their former places so soon as it is over, there to remain undisturbed and in a dormant state until the following spring, when the previous year's treatment should be repeated.

CALOCHORTUS.

The whole of their management may be said to devolve upon two points—protection from frost in every stage of their existence, and the presence of no more moisture at any time than they can assimilate; and any situation, whether in-doors or in the open air, will be found equally available, if these essentials can be secured.

THE CHINESE PRIMULA.

About the latter end of February or the beginning of March I sow my Primula seed, in wide-mouthed pots or pans, in soil consisting of equal portions of peat, loam, and leaf-mould, with a moderate portion of silver sand, well mixed together and rubbed to pieces with the hands, to make it fine enough to sow the seed in; previously well draining the pots or pans by placing a little moss over the drainage to prevent the soil from mixing with it, and then filling them to within half an inch of the brim, merely leveling the soil, or slightly pressing it to form a level surface to sow the seed in, which should be barely covered. Then place them in the stove near the glass, being careful to throw a piece of paper over the pans or pots to prevent the sun drying the soil before the young plants make their appearance, after which it may be discontinued. As soon as they are large enough to transplant I prick them off into pans as many as may be required, and about the beginning or middle of May they will be ready to repot singly into small pots, using the soil recommended above, but not on any account to be sifted; then place them in a close frame for a day or two, until they begin to make fresh roots, when the supply of air may be increased daily, until you are able to give them the full current of it, being careful to shade them from the mid-day sun. Towards the beginning of July they will require shifting into forty-eight sized pots, and afterwards let them be returned to the cold frame and treated as before, pinching the blooming-stems out as they make their appearance. By the middle of August they will require their final shifting, the strongest into twenty-four, and the smaller ones into thirty-two sized pots. These will be handy for decorating a small stand or vase in the house, if such be required; they should be returned to the cold frame again and treated as before, being careful not to over-water them or let them want for it. About the latter end of October they are removed to the greenhouse, and placed on a shelf near the glass, where they will get plenty of light and air. About this time I discontinue pinching out the blooming-stems, and am always careful not to water into the hearts of the plants. G. Stanley.

CALENDAR FOR JANUARY.

As the indiscriminate destruction of birds is thought to be a very praiseworthy employment by many, especially during the winter months, when they have less shelter from their merciless assailants, it may be worth while to see if this undistinguishing warfare be altogether justifiable, or rather if it be not a means of depriving the garden of some part of its attraction and usefulness. Various cases have been stated where an almost total destruction of rooks, and also of other birds, has been attended with such an increase of insect life as to make it necessary to offer premiums for the reintroduction of the birds so ruthlessly driven away. Every one who has watched the rooks either following the plough and harrow, or spread in long ranks over meadows and pastures, must be aware that it is not after corn or other substances useful to man that they are searching, but chiefly after the grubs of various insects which do enormous damage to the roots of the crops, and to destroy which, to any beneficial extent, is beyond the power of man. The starling, again, clears off an enormous quantity of insects in a smaller way, and being a bird living, I believe, entirely on insect food, ought never to be destroyed. Great complaints are made against the sparrow, chaffinch, and many other small birds, and although they may sometimes plunder a little, especially in harvest time, yet they should meet with better treatment for the vast amount of good they do earlier in the season. If a young chaffinch be killed just before it leaves the nest, and opened, it will be found crammed with caterpillars, and if the nest of them be near a garden, the chief of them are of those sorts found on plants of the cabbage tribe. The different sorts of tits again are charged with disbudding the fruit trees, but ere this be set down to their disadvantage, it would be well to ascertain whether the most of the buds which they do take be not already attacked by insects, and therefore lawful spoil for the nimble little beauties. Blackbirds and thrushes also devour great numbers of snails, &c., during the winter, and, therefore, independent of their song, deserve more consideration than they usually meet with. In fact, all have a right to a fair trial ere they are condemned.

In the Flower Garden and Shrubbery all fine weather should be taken advantage of to forward every description of ground work, moving deciduous trees and shrubs, and also pruning such as require it. Lawns may be mended or relaid, a few Anemones may be planted, and Tulip beds should be carefully protected from frost and wet. Half-hardy trees and shrubs should also be regularly attended to, as many of them receive more damage from frost in the spring than at any other period.

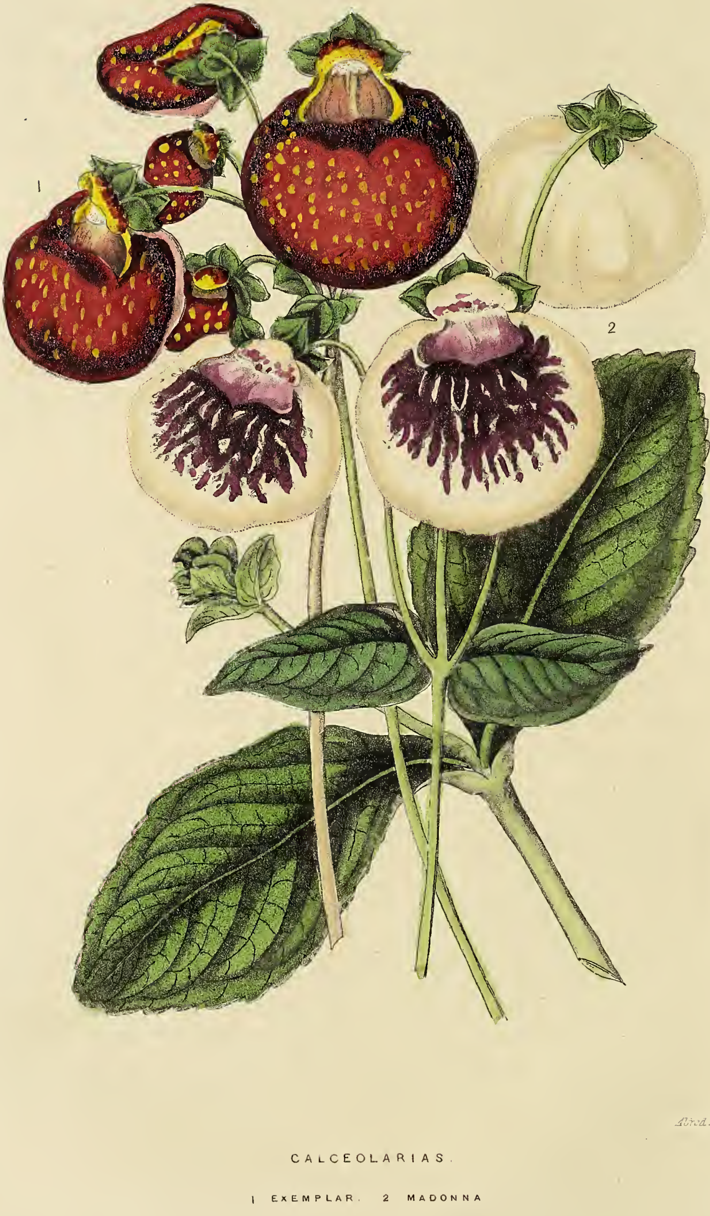
All plants in pits and cold frames, as Carnations, Auriculas, Stocks, Mignionettes, &c., should receive every bit of air possible, but no water beyond just enough to keep them healthy should be applied, and that only on fine mornings.

Almost exactly similar attention must be paid to the greenhouse with regard to air and water, fires being only had recourse to in frosty or very wet weather, when a fire should be lighted if the house becomes damp. The temperature should not be kept above 40° or 45° at night, although it may range higher during the day in sunny weather, advantage being taken of such opportunities to give plenty of air.

Where a structure of any kind is used for forcing flowers, regular supplies of Roses, Lilacs, Hyacinths, and any other desirable plants should be introduced, as room occurs by the removal of those forward enough to be placed in the greenhouse or conservatory. A portion of the stock of Amaryllis, Gloxinias, Achimenes, Tuberoses, and other plants of similar habits, should also be placed in heat, and brought steadily forward. Such plants as Verbenas, Heliotropes, Petunias, and others wanted in quantities, should also be placed in heat, to supply cuttings, which should be propagated as quickly as they attain sufficient size to be taken off the old plants.

In the stove department particular care should be paid to the Orchidaceous plants, repotting those that absolutely require it, and are commencing their growth, using sphagnum for those on blocks or in pots where they do not require to be elevated, but peat and broken pots, or freestone chips, where they do require to be so placed. Attend regularly to neatness in every department, removing dead leaves, fumigating, &c., as occasion arises.

D. M.



Alfred Adlard sc.

CALCEOLARIAS.

1 EXEMPLAR. 2 MADONNA

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THE CALCEOLARIA.

WITH AN ENGRAVING.

The accompanying illustrations of this beautiful and deservedly popular flower are two of the finest seedlings we saw through the whole of the past season. "Exemplar" is perhaps the best spotted variety extant. It obtained the principal award, and unqualified admiration of all who saw it at the metropolitan exhibitions of last season, and is the production of Mr. F. R. Kinghorn, of Twickenham, to whom we are obliged for the specimen figured, and for the very lucid paper on their culture which is attached. "Madonna" was raised by Mr. Gaines, nurseryman, &c., of Battersea; it also is a flower of first-rate properties, indispensable to every good collection.

The Calceolaria has long been a particular favorite of mine; and I alwards considered it susceptible of great improvement, by hybridizing the best varieties that we were in possession of. It was one of the first plants that I endeavoured to grow into specimens; and as soon as I had an opportunity I began raising seedlings, with what success the public are the best judges, as they have had ample opportunity of seeing them at the metropolitan exhibitions for several years past. When my seedlings and specimens are in bloom, I have many visitors, and there are few but what are struck with the fine effect they have on a stage appropriate to their culture, or arranged amongst other plants in the conservatory. I have been told by good gardeners that they were deterred from growing them, as they were so subject to the attacks of insects, and so difficult to keep during winter; that from one or other of those causes they had frequently lost valuable varieties, so that they had entirely given up growing the finer sorts. My answer has invariably been to such, I know of no kindlier growing plant if you treat it well, nor one that affords more satisfaction, from the time the cutting is potted off till it is in full bloom.

I will endeavour to explain as briefly as possible my routine of culture, beginning with the plants usually sent out by the trade, which ought to be in the grower's hands about this time. As soon as they have filled the small pots with roots, I repot them into pots a size larger, and frequently two sizes, or from

No. 60 into No. 32, but if the plants are intended for exhibition, I am guided by the size they are to be shown in. The compost I use is two parts light loam, one peat, and one old rotten cow dung; to this I add a quantity of sand, according to the texture of the loam.

At this season, after repotting, they are set on a stage in a pit, and kept close till they have got root into the fresh soil. I do not shade them after this shifting, but take the advantage of a bright day to water them over head with a fine rose pot. It is astonishing, even at this dull season, how fast they grow under such treatment: care must be taken to protect them from frost at this stage of their growth. As they get established in the pots I remove them to the warmest part of the greenhouse, where they require to be occasionally watered, avoiding wetting the foliage now, keeping them moist, but not wet, never allowing them to get *too dry*; fine plants are more impatient of either extreme.

I have no stated time for repotting them. If they have filled the pots, they are shifted into larger, up to the middle of March, for if they get very much pot-bound, they seldom do well afterwards. I am very particular in having the pots clean and well-drained, placing some of the roughest parts of the soil over the potsherds, and have frequently allowed what part of the drainage may adhere to the ball of the plant to remain undisturbed, particularly when shifting into pots two sizes larger. I add a little more loam to the compost for all the strong-growing sorts, and for any that are weakly, a little sand and peat. They will now require strict attention to watering, increasing the quantity as they fill the pots with roots, with occasional waterings of liquid manure. I close the lights early in the afternoon, and syringe the plants with pure rain-water that has stood in the house all the day: regulating the temperature of the house by the appearance of the plants, never allowing them to get drawn up weakly. I shade them with thin canvass for a few hours in the middle of the day. As the flower stems require it, they are neatly staked, giving them plenty of room to form fine heads. I very seldom have recourse to stopping, as I find the flowers are larger and finer on the first stems, and there are more foliage on the first than on lateral shoots; and when the plants are in full bloom they are more of a conical natural form, and in my opinion look much better than when trained flat and formal. The plants which I exhibited at Chiswick, in May, that were so favorably noticed in the journals, and for which I was awarded the first prize, were treated as I have described. When the plants are no longer an ornament, take them to a cool shaded situation, and remove the flower stems as soon as they are ripe, and pick off all the dead leaves, just giving them enough of water to keep them a little moist; this is the trying time; but after a short interval of rest, they soon begin to grow, when they should be top-dressed with rather sandy soil. If a large increase is wanted, take off the shoots as soon as they are fit for cutting, (not stripping the old plants too bare, or they are apt to perish,) and plant them under a hand-glass in a shaded situation; when rooted put them into No. 60 pots; set them in a close frame facing the north, where they soon get established, and afterwards remove them to a pit. About the middle of October I divide the old plants, pot them in as small pots as convenient, and treat them in every respect the same as cuttings.

The above, with occasional fumigations of tobacco to kill the green fly, is a statement of my practice; but as a preventive is better than a cure, it is well to give them a slight fumigation once a fortnight; it takes no more tobacco than is required to clean the plants, if the fly has been allowed to become numerous. When it is taken into consideration how long this most beautiful tribe of plants remain in full perfection of bloom, they well repay for a little extra care to preserve their leaves in a healthy state, as no plant (let it be ever so well flowered) is creditable to the grower if the foliage is discoloured or destroyed.

F. R. Kinghorn,
Gardener to Lady Ann Murray.

TULIPS.

The influence of this most extraordinary season is likely to be felt by the Tulips even yet, and it may be, without due precaution be taken, severely. Beds in warm sheltered positions and on dry subsoils are most likely to suffer from the circumstance of their occupants growing somewhat more early. They, and indeed all others, should be looked over carefully every day, for in all probability the young shoots will be found pushing through the soil, and if not protected, will be liable to fall victims to gangrene; the effect of the frosts we must reasonably expect to experience, and that shortly. I am not an advocate for the application of mats more than can be helped, and seldom use them until the blooms are rising from the heart of the foliage, and then am very careful to remove them as quickly as possible; so that in the present case I should recommend as far better that the protruding points be covered with little hillocks of dry sand; the fine white kind called silver sand is to be preferred, as it is free from iron; the corrosive qualities of that commonly contained in the yellow stuff of ordinary use is but too well known. Let the former be quite dry when applied, and laid on in quantities of about half a pint to each bulb, and they will be safe.

Florista.

MANAGEMENT OF THE AURICULA IN WINTER.

There cannot be anything more erroneous in the management of these plants than to allow them to become so very dry, as is the usual practice at this part of the year; let them receive a full supply whenever they appear to require it, rather than by following the "little and often" system, occasion yourself more trouble, and inflict an injury on the plants. I am also equally anxious to preserve them unscathed by frost, as its effects are certain to be seen in the crumpled petals at the blooming season; this is a result so positive that it is really wonderful the subject has not been more fully insisted on. To obtain flat, freely expanded flowers, is the florist's principal aim and pride, for without attaining this point all his previous labour is void, and his blooms worthless. Numerous are the expedients adopted when the "pips" are opening, some of them, perhaps, not very creditable to the ingenuity of the operators, and others exceedingly troublesome; while the most important preventive of curling has been neglected until it is too late to hope for any benefit to arise from its influence. From the beginning of January, Auriculas should never be subject to the action of frost; the frames in which they are placed should be as carefully and constantly guarded as the greenhouse; and though other means are necessary to the purpose, it may be as effectually done by enveloping them in mats, or other warm and dry coverings, to be increased in number with the increase of cold, and to be continued both day and night whenever necessary; the main object being to preserve the plants from the cramping effects of a sudden check in their vegetation, at a time when it is most active. It must not be understood that I intend these coverings to be applied except when it is actually freezing, or to be continued longer than the duration of the frost; what is required is to securely guard the plants from the ill effects of the latter, and at the same time to preserve them in a healthy vigorous condition by the admission of all the light and air that can possibly be afforded at this inclement season, regard being had to the former consideration. I may add that a pan of water placed under the platform on which the pots stand in the frame will be found highly beneficial at the time when the flowers are about expanding, as by assisting to keep a moist genial atmosphere about the plants, it enables them to unfold their blossoms to their largest size.

D.

A DESCRIPTION OF SOME OF THE BEST GARDEN PEAS.

A succession of this esteemed vegetable is of the first consequence in most gardens, and its provision is often a matter of inquietude to the gardener, who, from the multitude of new sorts offered each season, is often at a loss to select for the best. Under these circumstances, perhaps the following remarks on the subject may be of assistance. For the first crop I find none to equal Cormack's Prince Albert. It is as least ten days earlier than any other variety I am acquainted with: sown in the last week of November, they are fit for gathering by the 20th or 25th of May, whilst the Early Frame or Early Warwick usually run into June before they can be used. It is one which also bears transplanting well. Thus, if a crop be sown in heat at this part of the year, and, after being gradually hardened, be planted out next month, very little or no time will be lost, and a good supply quite certain. It rises to about five feet, or rather more, in good soil, and should have stout sticks and plenty of room. For a second crop I sow either the Warwick or Shilling's Grotto. These are put into the ground in the first week of February, using a quantity calculated to afford a supply for three weeks; and, to succeed them, there is not a better than the Old Scymitar. This variety I select for the main crop, and therefore sow it largely at an interval of about three weeks, or the time the previous variety is expected to be good, after they are sown. At the same time with the Scymitar, three or four rows of Knight's Dwarf Marrow are put in. This is really the richest pea I ever grew. It is very prolific, continuing to bear for a very long time, and is little or no trouble, as it does not rise above three feet at any time. It affords an excellent change, and, being about ten days longer in coming to maturity than the Scymitars, is very useful. Stout short sticks should be used for it, driven firmly into the ground, as, though short, it is heavy. About the last week of March a sowing of the Milford Marrow of considerable extent is made, to afford a supply for the end of July and August. This is a tall pea of good quality, which must have space. Single rows, at a distance of fifteen or twenty feet, is far the best for it, and allows a much greater economy of the vacant room to be exercised, as the ground between may be planted with dwarf summer crops, which will be rather benefited than otherwise by the partial shade afforded them. The foregoing are all the kinds actually necessary to maintain a good and regular supply, as, after these Marrows, I reverse the order of succession, beginning with the Knight's Dwarf and Scymitars, which will serve till near the middle of October, to be followed by the Prince Albert, omitting as unnecessary the Warwick or Grotto. I am thus enabled to secure a dish whenever required till the middle of November in ordinary seasons. This year I succeeded in saving them rather later by taking the precaution to cover the last crop with mats through the autumn frosts.

J. WELKING.

PLANTS FOR EXHIBITION.

A Correspondent, who is desirous of growing a collection of plants for exhibition, has written to us for information on the subject; and as we gladly observe a laudable spirit of emulation gaining ground among gardeners, with the support and countenance of employers, there cannot be a doubt of the importance of the question; we will therefore endeavour to point out what seems to be essential matters in the commencement of such an object. The first advice we would offer a beginner is to attempt no more than existing conveniences will enable to be done well. The greatest preventive to success in the management of plants, is crowding them; the growing desire, which takes possession of all who begin the pursuit, to obtain everything new or beautiful, is eventually the great error on which so many founder. Let it then be first ascertained what space is at command, and afterwards determine on the most desirable class of plants adapted to the convenience, which once settled, should be strictly adhered to, unless, indeed, increased facilities offer, when, of course, an increase of the present stock, or the adoption of another, will only be the natural result. The schedules of the various societies offer inducements few can withstand; but then it should be remembered they are also arranged to suit growers of nearly every capacity: and there is far more satisfaction and credit attached to the first prize of a small collection ably contested, than to a second or third for a greater number of plants, obtained simply because there were not more competitors.

In the cultivation of all productions for this purpose, it is presumed that the utmost amount of skill and attention is given them that the cultivator possesses, and therefore any one who prides himself on his abilities as a successful grower should not be satisfied with anything short of the nearest approach to perfection it is possible to attain; repudiating altogether the principle of showing because no one else is likely to be there; as also the still more disreputable practice, but too prevalent, of trickery and evasion of the rules by which the exhibition is managed. It should be borne in mind, that the subjects produced on these occasions are to be regarded wholly as specimens of the exhibitor's skill as a cultivator, brought into juxta-position with those of his neighbour's. Thinking this, let any one weigh his own merits against the qualifications of those he is likely to meet, even though it be not in competition, and then determine in his own mind what position he would choose to occupy.

As a rough mode of arriving at the number of plants a house will contain, it may be assumed that every moderate sized specimen will occupy two square feet; many of them rather more, and but very few less; nor should even the smaller ones be placed much nearer together, for though there may be accomodation in the form of stages and shelves for a great number, there can be no more of atmospheric aliment; and if, as is well known, each plant appropriates a portion to itself, it follows that beyond a certain number the demand must be greater than the capacity of the erection will supply, and hence the frequency of weak growths, mildew, &c. It becomes then a matter of some consequence to know the minimum stock necessary to be grown to ensure a reasonable propect of producing the given number at the required time. Much must depend on the selection, but with a well assorted collection, we should say, to be enabled to show six, twelve should be grown; to show twelve, twenty are necessary; and to produce the latter number, perhaps three dozen will be required. This is with the assumption that all the plants are selected so as to bloom together; but if it be desired to have a collection fit for exhibiting twice or thrice in the season, the quantity must be increased in like proportion. Some greenhouse plants may be preserved in perfection for five or six weeks, or even longer, a matter of some consequence on all occasions, but more so where the convenience, and consequently the collection, is limited. The stove species are generally more fugitive, and therefore not to be depended upon. To assist the beginner we append a list of each, suited to the three first months of the summer, May, June, and July, with their respective colours, time of blooming, and probable duration of the flowers.

One other hint respecting the management of such plants we think it necessary to mention, which is, that as the general outline of each individual is always a point for consideration, finely-formed specimens are indispensable; and as the presence of sticks is offensive to good taste, let the training be done while the plants are young; those of hard wooded persistent characters will then do without any when grown to a proper size, and even the soft wooded portions will not require near so many.

List of Greenhouse Plants.

Name.	*Colour.*	*Time of flowering.*	*Duration.*
Acacia armata	yellow	May	a fortnight
*Achimenes longiflora	blue	June	all summer
grandiflora	purple	ditto	ditto
rosea	rose colour	ditto	ditto
ignea	scarlet	ditto	ditto
Lipmanni	purple	ditto	ditto
Aphelexis humilis	pink	May	two months
sesamoides	crimson	June	ditto
purpurea	purple	ditto	ditto
Azalea indica alba	white	May	a fortnight
variegata	white and red	ditto	ditto
lateritia	red	ditto	ditto
Gledstanesii	white and red	ditto	ditto
exquisita	pink	ditto	ditto
maxima	rosy lilac	ditto	ditto
Boronia serrulata	pink	ditto	one month
viminea	pink	ditto	all summer
anemonefolia	pink	ditto	one month
Chorozema varium	yellow	ditto	ditto
Coleonema pulchra	pink	June	ditto
Diosma capitata	lilac	May	a fortnight
Dillwynia glyciniflora	orange	June	two months
Erica aristata major	crimson, green, and black	May	one month
Hartnelli	crimson	June	ditto
Massonii	crimson and green	ditto	ditto
Cavendishii	yellow	May	ditto
tricolor elegans	pink	June	ditto
ampullacea	rose colour	ditto	ditto
ventricosa	any of the varieties	ditto	ditto
Eriostemon buxifolium	white	May	ditto
Genista Atleeana	yellow	ditto	a fortnight
Gompholobium polymorphum	yellow	June	one month
versicolor	orange	ditto	ditto
Hovea Celsii	blue	May	ditto
Leschenaultia formosa	scarlet	ditto	two months
biloba nana	blue	ditto	ditto
Mirbelia dilatata	orange and red	ditto	ditto
cinerascens	yellow	ditto	ditto
Nerium Oleander	rose	ditto	ditto
Oxylobium Pultenæa	yellow	ditto	one month
*Pentas carnea	flesh	ditto	all summer
Pimelia spectabilis	white	ditto	two months
mirabilis	pink	ditto	ditto
Hendersonii	pink	ditto	ditto
Podolobium staurophyllum	orange	June	ditto
Stylidium pilosum	white	ditto	ditto
Tropeolum Jarrattii	scarlet and yellow	May	one month
azureum	blue	ditto	ditto
brachyzerus	yellow	ditto	ditto
Zichya villosa	scarlet	June	ditto
floribunda	scarlet and orange	ditto	ditto

* Those marked with an asterisk require a stove temperature in the early part of the year, but bloom best in the greenhouse.

List of Stove Plants.

Name.	*Colour.*	*Time of flowering.*	*Duration.*
Angelonia grandiflora	blue	May	all summer
Clerodendron Kempfæri	scarlet	ditto	ditto
squamatum	ditto	ditto	ditto
splendens	crimson	ditto	ditto
fallax superb	scarlet	ditto	ditto
fragrans pleno	white	ditto	ditto
Dipladenia crassinoda	deep rose	June	two months
Echites atropurpurea	dark purple	ditto	ditto
splendens	crimson	ditto	ditto
Erythrina corallodendron	scarlet	May	ditto
crista galli	ditto	ditto	ditto
laurifolia	crimson	ditto	ditto
Euphorbia splendens	deep rose	ditto	ditto
Francisea latifolia	blue	ditto	one month
Pohliana	lilac	ditto	ditto
Gesneria splendens	scarlet	ditto	ditto
Suttonii	crimson	ditto	ditto
Cooperii	scarlet	ditto	ditto
faucialis	ditto	ditto	ditto
Gloriosa superba	scarlet,yellow & green	ditto	ditto
Gloxinia speciosa	blue	ditto	all summer
rubra	crimson	ditto	ditto
violacea	violet	ditto	ditto
Cartonii	pink	ditto	ditto
candida	white	ditto	ditto
Hindsia violacea	violet	June	two months
alba	white	ditto	ditto
Ixora grandiflora	crimson	ditto	ditto
crocea	buff	ditto	one month
alba	white	ditto	ditto
Jasminum sambac	yellow	ditto	ditto
Lissianthus Russellianus	purple	ditto	all summer
Manettia bicolor	crimson and yellow	July	several months
Myrtus tomentosa	white and crimson	June	one month
Pavetta caffra	white	ditto	ditto
Poivera coccinea	crimson	ditto	two months
Rondeletia speciosa	pink	ditto	one month
longiflora	buff	ditto	ditto
Stephanotus floribundus	white	May	two months
Vinca rosea	rose colour	ditto	all summer
alba	white	ditto	ditto

There are doubtless many other species of each division equally beautiful, but those we have mentioned are more than sufficient for a beginning.

EDITOR.

GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

Cribose. Perforated with little holes like a sieve.

Crinitus. Having a pubescence resembling a beard.

Crisp. Crispus. Crispativus. Having an undulated surface or margin, curled.

Cristate. When an organ is terminated by an irregular crest-like appendage, as when the filament continues beyond the anther, and there becomes thickened or dilated, it forms a crested or cristate stamen.

Croceus. Orange-yellow, the colour of saffron.

Cruciate. When opposite pairs of leaves or petals are placed at right angles, so as to assume the form of a cross.

Cruciform. Synonymous with the above.

Cruentus. Literally of the colour of blood, but usually applied as descriptive of a colour possessing more red than is found in the sanguineous hue.

Crustaceous. Covered with hard brittle substance resembling a shell.

Cucullate. Incurved or rolled over at the edges, so as to form, by the overlapping of the margin, a hood or covering.

Culm. Culmus. The flower stem of grain bearing plants, as the grasses, &c.

Cultrate. Cultriformis. Curved at one end in the manner of a pruning hook.

Cuneate. Cuneiformis. Tapering to one end, wedge-shaped.

Cup. An envelope to the fructification of some cryptogamic plants, also synonymous with corona.

Cupule. Cupula. A receptacle of the fruit of amentaceous plants, like the cup of the acorn.

Cupularis. Cupuliformis. Shaped like a cup.

Curvinerved. Applied to describe the direction of the veins or nerves of the leaves; these are either "convergent," as when they proceed from the base, curving outwards in the middle of the leaf and meeting again at the point; or "divergent," as when they issue in slightly curved, nearly parallel lines, from a mid-rib towards the margin of the leaf.

LIST OF ORNAMENTAL ANNUALS
SUITED TO THE CLIMATE OF LANCASHIRE.

Ammobium alatum, white, 2 ft.
Bartonea aurea, yellow, 2 ft.
Cacalia coccinea, scarlet, 1½ ft.
Campanula Lorei, blue and white, 1 ft.
Centauria depressa, blue and red, 1½ ft.
Cladanthus Arabicus, yellow, 1 ft.
Collinsia bicolor, white and pink, 1 ft.
Erysimum Perofskianum, orange, 2 ft.
Gilia tricolor, lilac and white, ½ ft.
Godetia bifrons, crimson and pink, 1 ft.
  Lindleyana, white and red, 1 ft.
German asters in varieties, 1½ ft.
  stocks in varieties, 1½ ft.
Hibiscus Africanus, black and white, 1 ft.
Leptosiphon densiflorus, lilac, 1 ft.
Lobelia gracilis, blue, ½ ft.
Lupinus nanus, blue, 1 ft.
  varieties, yellow, white, and blue, 1 ft.
Nemophila insignis, blue, ½ ft.
  atomaria, black and white, ½ ft.
Oxyurus chrysanthemoides, yellow and white, 1 ft.
Scabious in varieties, 2 ft.
Sweet peas, ditto, 4 ft.
Viscaria cœli-rosea, rose, 2 ft.

The ground where the seeds are to be sown should be dug and thoroughly pulverized in the course of the present month, to prepare it for their reception. The middle of March is the most proper time for sowing them. Let it be done when the earth is dry, and in a pleasant working condition. The only point to which attention need be directed in the operation is to avoid burying them too deeply: as a rule, the larger seeds do not require to be covered with more than an inch and a half of soil, or rather less if it be at all retentive; and if the smaller kinds are just hid it will be sufficient, observing to break the soil finely, to sow thinly, and to separate and transplant all that may require it as soon as they can be handled.

THE DERBY TULIP CHALLENGE.

The Derby florists have offered a challenge to the growers of Nottingham to show thirty varieties of Tulips in the ensuing season; but the latter, without declining the offer, proposed in return to lower the number to twelve, believing that quantity would make it the more a match of quality; this, however, has been declined by the gentlemen of Derby, and the Nottingham florists are now rather assuming the position of the challengers, for on this question, though they do not agree to the original proposition, have made another offer to show twenty-one, or four blooms in each of the feathered classes and three in the flamed; and in addition, propose to select five growers who shall each exhibit a stand of six flowers, cut from his own stock, against a similar number of the Derby growers. Mr. Wood, of the Coppice, Nottingham, also offers on his part to show six varieties against any florist of Derby; the preliminaries to be arranged by indifferent arbitrators.

NEW MODE OF PRESERVING CAULIFLOWER PLANTS.

Every gardener is but too well acquainted with the trouble of keeping the young plants of this delicate vegetable through the winter, especially where frames are scarce, or wanted for other purposes. At least it was my case for several seasons, until I adopted the following method, which has entirely removed the evil, insomuch that I have since had far less trouble with them, and the lights have been reserved for other uses.

There is nothing peculiar about the sort of cauliflower grown; but one very important point is to get them sown sufficiently soon to allow them to become well established before the winter. The first week in August is a good time, and the plants should be potted singly into small pots as soon as they have rough leaves, encouraging them to grow all the remainder of the autumn, by keeping a moist atmosphere about them, which is done by copious waterings, not only of the plants, but of the paths and ground around them: thus by the end of October they will have formed abundance of roots, and be in excellent condition to withstand the approaching winter. Up till this time they should be allowed a southern aspect, so as to receive all the sunshine that may occur; but as soon as November commences, I have them removed to the foot of a *north* wall, where a thick layer of ashes has been prepared for them to stand on; and here they remain through the severest weather, without protection or interference, except that in the case of a heavy fall of snow, or long continued rain, they are laid down on the sides of the pots, lest the snow should crush them, or the soil become sodden from the excessive wet. In the spring they are turned into their places, in the ordinary time and manner, and in ordinary seasons are not a week behind the most tenderly nursed crops in the neighbourhood.

I account for the success of this system on the principle that it is the frequent partial excitement experienced by the plants in frames, in consequence of being closely shut up with a raised temperature about them, whenever it is thought necessary to exclude the external atmosphere, which from increasing their naturally impatient character, renders them more susceptible of injury; while, on the other hand, those inured to the vicissitudes of the season, and assisted by the comparatively even temperature of their position, remain in a perfectly dormant state until the proper season arrives for the development of their long-stored energies.

I have given you the experience of four years, one of which was a trying one. Still perhaps I should not be justified in recommending the universal adoption of the method, as there may be situations and seasons too bleak and severe to warrant it; but it is, at any rate, worth a trial, under the circumstances which induced my first experiment.

Hortulanus.

PROTECTION OF PLANTS FROM FROST.

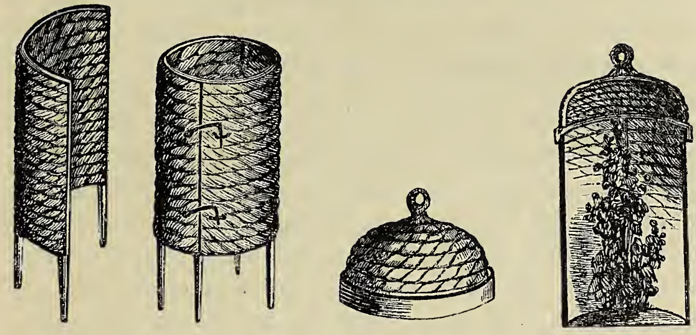
Many and various are the means adopted for the protection of plants and plant-houses from frosts, and the nipping cold winds of our early spring months; and yet so long as it has occupied attention, how much remains to be learned on the subject, and how seldom we find even the means at hand applied in the most effective manner. Coverings of bast mats are the most usual, and, at the same time most objectionable method; objectionable because they are expensive without being durable, cumbrous and untidy, ineffective, and excessively troublesome in either wet or windy weather. Nor are the best of the other modes in use entirely free from the same or similar objections; a demurrer of the strongest nature may certainly be entered against all loose coverings; every house, pit, or even common frames where they can be ranged in parallel rows, should have a fixed roller on which a waterproof covering of some kind may be made to work, so that the whole may be covered, or the protection removed with the least trouble in the smallest space of time. A cheap, durable, pliant, and transparent material, that will exclude frost and wet is yet a desideratum. But we have only to state our wants distinctly, in this age of skill and enterprise, in order to have them supplied, so that we do not despair of the arrival of that time when mats and other coverings of a similar kind shall be in the position that the old brick flues as a mode of heating are fast arriving at—mere matter of history. As it is, we have to consider the best manner of using the means we already possess; and here we would beg to impress in the most forcible manner on the attention of all concerned, the fact that coverings, of whatever nature, have their effectiveness increased nearly one half by being kept at a proper distance from the surface to be guarded; this applies to all glazed structures, the coverings to which (and every house or pit should have one, as a means of economizing the heat) ought to be elevated three inches above the rafters, which may be easily and neatly done by fixing small iron rods on feet along the middle of each rafter, on which the roller of the blind will run; and if the covering be a close impervious material, such as is offered by waterproof cloths, the space thus formed will become warmed by the radiated heat from below, and act as a non-conducting medium, in effect nearly equal to the same space actually filled with ordinary mats.

The protection of plants a few grades more tender than common shrubs, which are ordinarily placed out of doors as permanent objects, will also require attention through this and the following month, and indeed not unfrequently till the middle of April. Here, too, an error prevails in practice; the plants are wrapped up most carefully through severe weather, covering being heaped upon them, until they are absolutely in a warmer atmosphere than they are likely to experience when again uncovered; and this may continue for several weeks probably, during which the excitability of the plant is roused, and it is ready to burst into a new growth the moment that conducive circumstances surround them; and to make the matter worse, on the first gleam of sunshine, and every mild day after, the whole of the coverings are removed, thus exposing the plant to an injurious glare of light in the first case, and to the ill effects of a precocious and untimely development by its continuance. It must be evident to every thinking mind that these sudden and opposite changes can be anything but conducive to the state of perfect quietude so desirable in all plants in a state of nature at this season of the year; yet, notwithstanding the very apparent wrong character of such treatment, by far too many instances may be adduced to fully bear out the assertion that such is the practice.

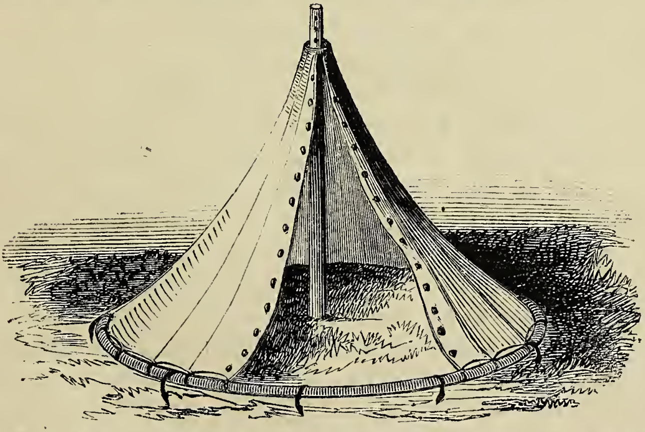
The object to be gained by the protective measures adopted is simply to ward off just so much frost as would injure the plant, and no more; every addition beyond this point is a positive mischief; in effect as erroneous as it would be to remove such plants to a stove temperature in order to ensure them a season's rest. The exact amount of cold or frost that a plant of the kind will bear with impunity is a matter that a gardener's experience must teach him: it will be found to vary with situations and the state of the subject, but we are certain that if nothing but thoroughly mature and well ripened parts be exposed, there is much less to be appreheneded on this account than is generally believed. It is only when the tissue is full of crude aqueous matter in the shape of late growths that mischief really occurs.

In removing coverings of the kind, it should be particularly observed to do it gradually, avoiding the incautious haste complained of; thus, if two mats were used, let one be taken off, and the other remain for at least another day, and to keep the plants shaded on the southern side, so long as there is a probability of their requiring to be covered again. We repeat, it is not so much the cold that is to be dreaded as the expansion of new growths (so likely to occur) before the return of genial weather.

The annexed woodcuts represent two kinds of coverings for plants standing in the open air; they combine the two desirable qualities of effectiveness and neat appearance.



The cylindrical form is composed of straw, worked upon uprights, which continuing below, form legs to be driven into the ground for the support of the covering; it is made in separate halves, as being more easily applied, and also for the convenience of stowing away when not wanted. When this covering is to be removed, the half on the northern side of the plant should be taken away two or three days before that on the other side, in the manner and for the reason before expressed when speaking of mats as applied to the same purpose, and being made with a detached top, air can be admitted on favorable occasions, even before it would be judicious to remove the sides.



The other tent-like figure is made of waterproof cloth, supported in the centre by a single upright, having holes in the upper end, through which a pin is placed to keep the top of the cloth in its place; and the bottom of the covering is attached to a stout iron hoop, by means of small rings, which by working over and along the hoop, and the cloth opening up one side, enables the whole or any part to be drawn aside for the admission of air; this, we need scarcely repeat, should be given on the north side. The hoop is kept securely fastened to the ground by driving several hooked pegs round its circumference, and a string run through the hoilet holes on the edges of the cloth and drawn tight, will keep the plants snug and perfectly safe. Either of the modes represented must be considered as decidedly preferable in every respect to the untidy, troublesome coverings of mats, and one not a whit more expensive, being easily fixed or removed, and will last with care for a number of years.

EDITOR.

DESCRIPTIVE LIST OF NEW PLANTS.

VERBENACEÆ.—*Didynamia Angiospermia.*

Mastacanthus sinensis. This is an autumn flowering herbaceous plant, growing from one and a half to two feet high, and forming neat little bushy tufts. It is in a gardening point of view of some importance, because it furnishes an abundance of rich violet blossoms at a season when that colour, never abundant, is peculiarly rare in gardens. It has been received from Mr. Fortune, who sent it from China to the Horticultural Society, in whose garden it flowered in October last. It grows wild in the neighbourhood of Canton, and Mr. Fortune found it in Chusan and at Koo-lung-soo. It is a greenhouse plant, which appears to grow freely in a mixture of rough sandy loam and peat, and, like other soft wooded plants, requires plenty of pot room. During summer an ample supply of water should be given to its root, and it may be syringed over head once or twice a day; but in consequence of its flowering in autumn, syringing should be discontinued as soon as the flower buds are formed, otherwise they will be liable to damp off. In winter very little water is required, nor is it necessary to apply fire heat, except to keep off frost. It strikes freely from cuttings of young wood under ordinary treatment.—*Bot. Reg.* 2—46.

FABACEÆ.—*Polygamia Monœcia.*

Neptunia plena. This curious water plant, with sensitive leaves, has been raised from seeds recently sent from Jamaica by Mr. Purdie, and a specimen of it, from the collection of his Grace the Duke of Northumberland, at Syon, was exhibited at a meeting of the Horticultural Society in October last. Its long spongy stems throw out innumerable thread-like roots, and, floating in the water, speedily produce broad masses of leaves, cut up into myriads of irritable leaflets. It seems to be common in all parts of tropical America: botanists have received it from Guiana, Mexico, Brazil, and various West India islands. Being a native of the hottest parts of the tropics, gardeners who may wish to cultivate this plant will do well to bear in mind that the water in which it is planted should have at least 80° of temperature, or it cannot be expected to thrive. It seems to be a perennial.—*Bot. Reg.* 3—46.

SCROPHULARIACEÆ.—*Didynamia Angiospermia.*

Buddlea Lindleyana. This was one of the earliest discoveries of Mr. Fortune upon his arrival in Chusan. He immediately sent home seeds, with a particular request that the species, if new, might bear its present name; and in little more than three months after they were posted in Chusan, plants were growing in the garden of the Horticultural Society. Dried specimen, have now reached this country, and one of them is before us. It consists of a branch, not quite a foot and a half long, on which there have been growing seven spikes of flowers, from two to three inches long each: their colour is a deep rich violet, a little verging on gray, on account of the numerous short hairs with which they are closely covered. In cultivation this shrub has hitherto proved unwilling to flower: it grows very vigorously—running to wood, as we say—and requiring some special mode of management to stop its exuberant vegetation. Probably very poor gravelly or clayey soil and a hot dry atmosphere would suit it much better than the rich mould usually found in gardens. It is about as hardy as a fuchsia.—*Bot. Reg.* 4—46.

Lobeliaceæ.—*Pentandria Monogynia.*

Lobelia glandulosa. This is a hardy herbaceous plant, of the easiest cultivation, growing freely in any kind of garden soil, and not unlike the well-known *L. siphilitica,* but much less showy. It attains a height of two and a half feet, flowers in September and October, and, like so many of its race, prefers a moist situation to a dry one. It has been raised in the garden of the Horticultural Society, from seeds collected in North Carolina, and presented by W. Dimes, Esq., F.H.S. The specific term was adopted in Walter's "Flora of Caroline."—*Bot. Reg.* 6—46.

Scrophulariaceæ.—*Diandria Monogynia.*

Veronica salicifolia. This plant was figured and described in Paxton's "Magazine of Botany," last month, under the name of *V. Lindleyana,* as a supposed new species. But Dr. Lindley now refers it to the *V. salicifolia* of Foster's Prodr., p. 3, n. 11, found by that botanist in New Zealand. "The point is not, however, entirely free from doubt, and the conclusion at which we have arrived is open to revision."—*Bot. Reg.* 5—46.

Convolvulaceæ.—*Pentandria Monogynia.*

Ipomœa simplex. When the rounded uncouth-looking tuber of this plant was presented to our garden by the Earl of Derby, in 1844, brought home from the eastern colonies of South Africa by Mr. Bender, we were not prepared for a cluster of such lovely flowers as appeared at the base of the stems in July 1845. It is one of the *Ipomœas* that is best worth cultivating, for it needs only a small pot, placed in a greenhouse, and no trellis or apparatus to support the stems, which at most do not exceed a foot in length, and are clothed with long, slender, almost grass-like leaves: it is, however, difficult of increase. The flowers are about two inches in diameter, of a rich rosy purple.—*Bot. Mag.* 4206.

Rubiaceæ.—*Pentandria Monogynia.*

Heinsia jasminiflora. A very little known shrub, from western tropical Africa, presented to the Royal Gardens of Kew by the Earl of Derby, who imported it from Sierra Leone through Mr. Whitfield. The shrub has a good deal the appearance of a *Gardenia* or *Randia,* with flowers, shaped indeed something like those of a jessamine, that is, salver shaped, but very much larger: the segments of the corolla broad and singularly striated, and often puckered (in those respects much resembling the sepals of some species of *Clematis*, particularly *Clematis viticella*): they are white and numerously produced. It requires the heat of a stove, and has flowered with us in September.—*Bot. Mag.* 4207.

LYTHRARIEÆ.—*Dodecandria Monogynia.*

Cuphea cordata. A truly beautiful plant, from the rich scarlet of its two large petals and calyces. Would that all the species of this extensive genus were as distinctly marked as the present one! It is a native of hills and woods in Peru, about Huassahuassi, Chaclla, and Acomayo, and from that country seeds were sent to Mr. Veitch, of Exeter, by his collector, Mr. W. Lobb, in 1842, from which plants were raised that blossomed in August 1845. The plant is kept in the stove, and seems to flower freely there. It may be increased by cuttings.—*Bot. Mag.* 4208.

LOGANIACEÆ.—*Pentandria Monogynia.*

Fagræa obovata. An exceedingly handsome stove plant, both as to its foliage and the large cream-coloured flowers, which moreover are very fragrant. It has long been cultivated at Kew, plants having been sent by Dr. Wallich from Sylhet, where, as at Singapore, according to the same botanist, it is a native. It flourishes in a moist hot stove, and succeeds best with bottom heat. It has lately flowered in the Botanic Garden, Liverpool.—*Bot. Mag.* 4205.

MELASTOMACEÆ.—*Decandria Monogynia.*

Melastoma sanguinea. This beautiful shrub, so seldom seen in our stoves, although it has been twenty years in the country, is a native of the Sunda islands, where it grows to a large bush, five or six feet high. In cultivation it seldom reaches a greater altitude than three feet, unless planted out in a border. The branches are well clothed with leaves, and terminate in a cluster of very large, delicately soft pink or rose coloured flowers, the ephemeral character and successive expansion of which, however, prevent them from appearing at any one time in excessive quantity; and it is therefore rather a plant which presents a moderately attractive aspect for a considerable period, than a gorgeous blaze of beauty, lasting only a few days. In the general characters of the plant there is a striking affinity with *M. macrocarpum*. It is, however, easily known from that species by the blood-coloured petioles and nerves of the leaf, and the crimson bristles which clothe the stem. A warm moist air is among the most important particulars in the treatment of the genus: they will thrive in any peaty soil, but are much improved by the addition of a portion of leaf mould.—*Pax. Mag. Bot.*

GESNERACEÆ.—*Didynamia Angiospermia.*

Gloxinia Passinghamii. This Gloxinia was discovered by a friend of Mr. Passingham, of Trew, in the county of Cornwall. It was found in a deep ravine, much shaded, and in a very damp situation, high up the Corcovado mountain, in the province of Rio Janeiro. It was in a situation very difficult to get at, but its extremely rich purple colour induced the gentleman to procure the root. Though it does not appear to differ specifically from *G. speciosa*, its large size and brilliant colour will make it an esteemed favorite.—*Pax. Mag. Bot.*

PORTULACACEÆ.—*Dodecandria Monogynia.*

Calandrinia umbellata. A small sub-shrub, of a prostrate habit, with little crowded linear leaves. The flower-stems, which are very wiry, spring from the termination of the shoots of the preceding summer, and rise about six inches, in their progress forming a bottle-shaped swelling at the foot, from immediately beneath which five or six fresh shoots push, to flower in their turn the succeeding season. Thus the plant goes on extending year by year, still retaining its procumbent habit, and multiplying the number of flowering branches. The flowers are disclosed in clusters at the top of the almost leafless flower-stem, and, although they are not so large as those of some of its allies, they ensure esteem for their numbers and rich purple colouring. They are by no means fugacious, but, unfortunately, like other Calandrinias, they never expand except whilst the sun shines brightly upon them. In its wild state it inhabits dry rocky places about Conception, in Chili, where it was first discovered by Ruir and Pavon. Seeds were received by Messrs. Veitch, of Exeter, in 1844, from their collector, Mr. W. Lobb, who met with it in his exploration of that district.

It is expected to prove quite hardy. Till this is better determined, however, it will be the safer plan to preserve it in pots in a frame, or on a dry shelf of the greenhouse, during the winter months. In summer it may be planted on rock-work, amongst a collection of Alpine plants.—*Pax. Mag. Bot.*

ORCHIDACEÆ.—*Gynandria Monandria.*

Cattleya maxima. The main peculiarities of this plant consist in its long channelled pseudo-bulbs, and in its very convex wavy petals, which are quite different in appearance from the thin, nearly flat petals of *C. Mossiæ* and *labiata;* in other respects it approaches these species very nearly. It is, however, remarkable for the dark crimson veins richly traced upon its pallid lip, and for a beautiful network of purple streaks, which is drawn over all their surface. At first, too, the colour of the flowers is so pale as to be almost white; but the tints heighten day by day, till at last the blossoms acquire a very rich rosy purple colour.—*Bot. Reg.* 1—46.

CALENDAR FOR FEBRUARY.

THE very mild winter up to the present time will no doubt be favorable to the multiplication of snails and slugs; and too much care cannot be taken to keep them under as much as possible. There are several species of the molluscous animals natives of Britain, and they are all highly injurious to vegetation, attacking the tenderest buds, and committing great havoc in a small space of time. But they do not all confine themselves to a vegetable diet, for in the spring slugs of a tawny or fawn colour may be occasionally dug up, for they then, at least, live under ground, and will be found regaling themselves on the large earthworm. These shell-protected vermin, for all the slugs will be found to have a shield of pearl below the skin on the back, immediately over the most vital parts, have many enemies. The blackbird and thrush destroy great numbers of snails in the winter; ducks, rooks, and many other birds, are equally destructive to slugs as well; but in gardens of course other means must be resorted to, and many are in vogue. In dry weather quicklime dusted over the ground, or other places where they abound, infallibly destroys all slugs with which it comes in contact. Lime-water is also good, especially for plants in pots. Various traps are also useful, such as cabbage leaves, turnips hollowed out or cut in slices, and other similar vegetables, laid about among the plants, and examined every morning. For choice flowers galvanic protectors have been invented, which are made to fit as edgings to beds, or circular to enclose a single plant or pot. Two or three small snails are very destructive to orchidaceous plants, being generally introduced among the moss. Slices of potatoes, turnips, cabbage stalks, &c. entice them in numbers; and soaking the plants in chilled water until they are dislodged is a good means of checking their ravages.

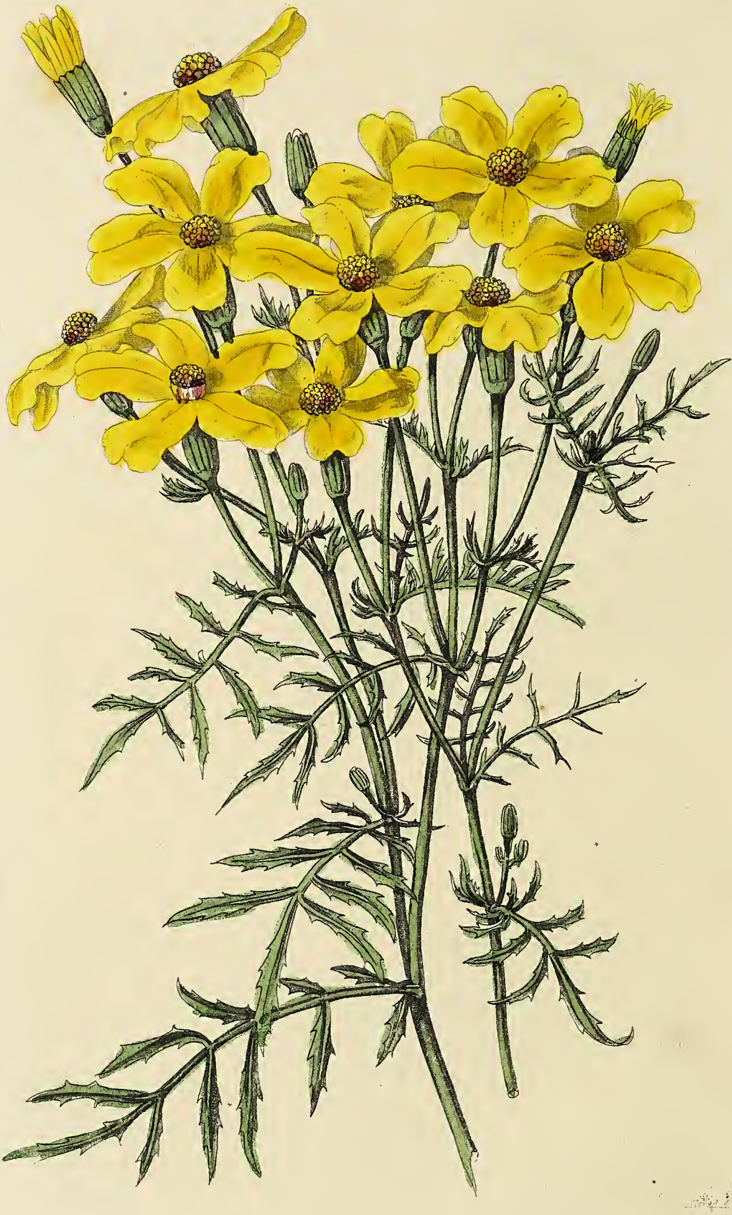
In the flower-garden all the routine work should be got forward as fast as the weather will permit, and all possible preparation made in bad weather, by preparing stakes, tallies, and other accessories to neatness and order, so as to lose as little time as possible when the season for turning the plants out arrives. Protect beds of tender bulbs, and also any half-hardy plants that may appear likely to survive. Hardy annuals may also be sown, especially in light and sandy ground.

Great care will be necessary in the conservatory should the weather set in cold, as no doubt many plants will be found inclined to start into growth should it be necessary to apply fire-heat. But in some collections the camellias are so backward that a rise of temperature is to be recommended in order to get them into bloom before they commence their growth, when they are very liable to lose their flower-buds without expanding them. Attend to the bedding-out plants in pits or houses, and place a few plants of such as it is desirable to increase in heat, taking off the cuttings as they advance. Keep the others clean, and look carefully to watering them, as they will soon be growing, and are then easily checked.

In the stove the plants should be regularly shifted as they advance, and should also be carefully looked over if at all infested with insects, as ere they commence their growth they are more easily examined, and are not so liable to injury as when they are more advanced. Orchidaceous plants should also be carefully shifted as they begin to move, taking care to break as few roots as possible.

In all houses and pits the temperature should be carefully regulated by the state of the external atmosphere, but for fear of hard weather no great increase of fire-heat should take places unless absolutely necessary to exclude frost.

D. M.



TAGETES TENUIFOLIUM

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TAGETES TENUIFOLIA.

WITH AN ENGRAVING.

Every one knows the common marigolds, distinguished by the appellatives of French and African: the former, *Tagetes patula* of botanists, is a dwarf, compact-growing annual, and the double kinds, which exist in some variety of colour, are really handsome flowers; the latter is called *Tagetes erecta*, and is also an annual plant, but of much more rigid habit, bearing flowers twice as large as the French marigold, and some of a delicate primrose colour, others of a deep orange tint. Both these are beautiful objects *to look at*, but they must not be touched, for the odour they give out or impart to the fingers is anything but agreeable to most persons.

The *Tagetes tenuifolia*, represented in our plate, does not possess this latter disqualification to being a general favorite; for, though it does give out an odour, yet this odour is an agreeable one, partaking somewhat, no doubt, of the same characteristics as the common kinds, but altogether more refined and balsamic, and when not taken in too close and powerful an indraught, it is, to our sense at least, a very agreeable scent.

It is an annual plant, and forms a dense compact mass, of small growth, and very much branching in its habit. The leaves are slender and pinnatified, the divisions being curiously marked with a row of minute glands, which appear to be (as indeed they are) small orange-coloured dots: these glands secrete the agreeable fragrance just now referred to. The flowers, as will be perceived from our representation, are but of moderate size, though some little allowance must be made, as our specimen was procured quite late in the flowering season, and indeed after the plants had been injured by frost. The flowers are composed of five roundish florets, with a deep notch at the end, and of an orange-yellow colour. Our specimen was obtained from a plant grown in the garden of the Royal Botanic Society of London, in the Regent's Park, and we were informed that the seeds had been procured in a London seed-shop during the last spring, under the title of *Tagetes signata*. It is, however, doubtless the old *T. tenuifolia*, which was originally introduced as far back as 1797, but appears to have been lost until this importation has again placed it in the hands of cultivators.

We believe this plant to be one of the most prolific of bloom among the whole tribe of annual plants, and one particularly adapted for planting out in beds on the lawn or grass-plot. We have had an opportunity of observing this during the past summer in the garden just referred to, where a small bed of this plant was in bloom during the whole summer, and continued flowering up to the period of severe frost at the end of October. These plants, we were informed, were raised among some other half-hardy annuals, and they were potted singly into small pots, ready to be planted out when required. These were introduced to a small bed, after some early-sown annuals had decayed, near the end of June; they were then in flower, though only a few inches high, and even dwarf bushy plants, exhibiting the tendency to branch out, which increased with their increase, until the whole bed became covered with their numberless slender branches, and was studded over in every part with their brilliant-looking flowers. From that time till the end of October this bed continued quite a picture, the plants ultimately not being more than fifteen inches high, and forming a dense compact mass.

It often happens that plants which are most prolific of blossom are also the most littery, from the decay and falling of so great a number of flowers; but such is not the case with *Tagetes tenuifolia*. In the whole course of our experience we never saw so *clean growing* a border flower: it never appears littery. The flowers are produced at the end of each of its numerous little branches, and as these open the branch which bears them puts forth other branches from just below the flowers, and then just grow up to cover the old flower by the time its beauty is waning, and the buds with which they are furnished are by that time in readiness to expand; in fact, some are continually opening, while others are continually being covered with the young growing twigs. Thus, the decaying flowers are constantly hidden beneath a covering of most elegant foliage and brilliant blossoms.

Tagetes belongs to the natural order *Compositæ*. *T. tenuifolia* is a native of Mexico. The flowers are single, and it is even questionable, notwithstanding the favour in which double flowers are almost universally held, whether, if these flowers *were* double, the plant could possibly be more beautiful.

THE CULTURE OF JAPAN LILIES.

The elegance of these comparative new additions to our collections is of that high and chaste order as to meet the taste and admiration of every beholder. No wonder, then, they have so rapidly extended; for they are certainly desired, if not present, in every garden. Added to their universally admitted attractions of stately grandeur and brilliant colouring, may be mentioned their great docility in cultivation, being, in fact, manageable by the merest tyro, without trouble or other means than thoroughly good soil. I grow them in various ways—a portion are potted and brought forward in gentle heat, to afford an early bloom for the conservatory; others are also placed in pots, but allowed to grow in a natural manner, so as to bloom after the first named; while a considerable number are planted into the beds of the flower garden, as permanent ornaments to that part of the charge. I mention this to show that their culture is attainable by any one, let his conveniences be what they may.

To grow them in pots for the greenhouse is the most usual practice, where their beauty is unquestionably heightened and preserved for a longer time than can be expected with those exposed to the vicissitudes of the season, or of others influenced by a forcing regimen in the early stages of their growth. For this purpose the bulbs should be potted in January, or the early part of the following month, in order that the new roots which are ordinarily protruded about this time, may not receive injury in the operation, and also that the required food may be present as soon as wanted. Large pots are essential to a vigorous growth: for a full-grown bulb, capable of flowering, the pot should be a foot or fourteen inches in diameter, and, if there are two or three bulbs together, of course a still greater size will be necessary, without being at all disproportionate, for the plants attain a height of from five to six feet, and, should there be three or four stems, the foot-stalks of the flowers will extend in a lateral direction and form a large head. The soil most suited to them is a mixture of turfy loam and peat, with a proportion of about a third of thoroughly rotten manure. This compost should be used in as rough a state as possible, with a proper regard to its being well mixed, leaving all the roots, sticks, and similar matters in it, and a good drainage being placed in the bottom of the pot. The soil may be pressed firmly round the bulb, leaving its crown about two inches below the surface. A light airy shelf in the greenhouse, or the front of a cold pit, will be the best situation for the growing plant, until it has become too large for its station, and a removal either to some sheltered place out of doors or where sufficient room can be afforded in the greenhouse, becomes necessary. About this time the base of the stems will be found to emit roots just above the soil in which it is growing, and, if some earth be drawn around them, small bulbs will be formed, which afford a ready means of increasing the stock. A liberal supply of water should be given daily while the plants are growing, and an occasional soaking of liquid manure will add to the general vigour. This treatment may be continued till the end of the blooming season, when a sunny situation out of doors should be selected for the ripening of the season's growth, and a gradual reduction of the supply of water take place, until, by the end of autumn, the soil in the pots is left dry, and the roots in a dormant and fit state to pass through the winter.

Those which are grown entirely out of doors—and the whole of them I have found to be perfectly hardy—should be planted in soil similar to that recommended for potting, and must have attention to sticking and watering in dry weather, though the trouble they occasion is scarcely worth mention, until the winter, when a thick layer of fresh leaves should be thrown over the beds, not so much for the sake of keeping off the frost, as to preserve them in an equable temperature, lest they make an early growth, and then suffer from adverse weather.

HORTULANUS.

CULIVATION OF GEISSOMERIA LONGIFLORA.

How seldom is this plant seen cultivated in a manner which renders it one of the most magnificent objects that can be wished for, to bloom through the dreary months of winter, both as regards long continuance in bloom and splendour. It is too well known to all who have had the management of this plant, that great disappointment is experienced by not being able to produce short, bushy, compact specimens. This is what is too frequently the great detriment felt by the cultivator of small collections of plants. Still we have not a plant that stands more prominently forward when judiciously treated. My mode of increasing it is by cuttings, taken about the present time, when the plant is in full vigour—selecting some of the most ripened wood, taking the two lower leaves off, and making a clean cut close to the joint, using peat well incorporated with sand, and standing the pots of cuttings in a gentle bottom heat. As soon as they have struck I place them singly in small pots, say sixty-sized, using a light, rich compost, spreading the roots near to the surface, and place them in a warm pit, or into the stove, as near the glass as convenient, watering them with great care. I never allow them to receive any check for want of pot-room, and at the time of potting, the soil, which has become exhausted, is shaken from about them. They remain in this situation until they show flower, when they are brought forward and stood upon the front stage, forming subjects of great attraction. While in the above position, and as soon as the blooming season is over, I cut them close back to within four eyes of the original wood, then turning them out of the pots, shaking the soil clean away from them, and at the same time washing the roots thoroughly, they are stood in a pot filled with wet moss, and plunged into a brisk bottom heat, which, in a short time, induces them to break from every eye, forming a beautiful compact plant, and as soon as they have made about two leaves to each eye, they are again potted, using the compost above described; and by this truly simple treatment a fine specimen may be had in one season.

A—C.

POLYANTHUSES.

I regret very much that this, one of the most beautiful of the florist's pets, does not advance with a rapidity equal to some other portions of the class, and conceive it must arise from a difficulty in selecting really fine sorts; for it is indisputable that for one good one there are a score of worthless varieties, which must necessarily cause disappointment whenever they happen to be received. To assist in removing this obstacle to their more general adoption, I forward a list of twelve which may be depended on, and have described their characters as they have been pourtrayed on the average of five years. I may add, my Polyanthuses are *grown* in the borders, but are bloomed in pots; that is, they are planted into rich loam, and in a shaded position as soon as the flowering is over, and are again taken up and potted in the autumn, preserving them in cold frames through the winter and the following blooming season, which I find to be one of the very best methods of securing strong healthy plants, and consequently, fine, large, and clean flowers.

Pearson's Alexander. An old variety, but indispensable. It has a fine dark maroon ground colour, good eye, with beautiful regular lacing. The only fault it possesses is, that the segments are cut rather too deeply, which reduces the strength of the flower, and gives it a tendency to droop or reflex.

Buck's George the Fourth when true has but one fault, and that a minor one—the flowers composing the truss do not open simultaneously, but at intervals. Thus it is seldom it can be "caught." The ground colour is a rich crimson, the eye is clear yellow and prominent, the lacing regular, and the segments proportionate. The individual flower is quite flat and circular.

Clegg's Lord Crewe. One of the largest and best flowers we possess. Ground colour very dark; remarkably bright eye and lacing; the tube a trifle too large.

Clegg's Prince of Orange. A handsome, regular variety, having excellent properties in the eye and lacing, rich dark ground colour, and fine shape.

Fletcher's Defiance. What can be more beautiful than a well-bloomed specimen of this variety. For regularity of lacing, general outline, and the perfect evenness of its pips, it stands unrivalled. The ground colour is deep crimson-brown, with a tinge of bronze, or at least a lighter shade near the base. The segments are comparatively small, and are regularly and neatly margined with clear yellow, which runs completely into the fine elevated eye.

Collier's Princess Royal. A very heavy laced variety, with an excellent elevated tube and circular flowers, but rather dull ground colour.

Stead's Telegraph. A rich and novel coloured flower, the ground being dark scarlet, fine eye, and good clear yellow lacing. It has a fine shape and is an excellent bloomer, though the plant appears to be of delicate constitution.

Nicholson's King is a good and useful flower, with a fine elevated tube, bright yellow lacing, proportionate segments, circular pips, and a nice regular truss. It is one which may be depended on under almost any circumstances. The ground colour is red.

Lord John Russell. A prolific bloomer, with neat and regular lacing, tolerably good eye, of medium size, and circular; dark ground colour.

Scaramouche. A large handsome variety, perfectly circular and flat, elevated tube, clear, distinct, and bright lacing, passing completely and regularly into the eye. Rich velvety crimson ground colour. An abundant bloomer, and, what is almost of as much consequence, a hardy strong growing plant.

Wilson's Bucephalus, Maude's Beauty of England, Smith's Orpheus, and *Mitchell's Lord Nelson* are all very much like Pearson's Alexander, perhaps on the average a trifle larger, and, with the exception of the first, which is a shy bloomer, are about equal to it.

FLORISTA.

THE EMBELLISHMENT OF GARDEN SCENERY.

WITH AN ENGRAVING.

In the present advancing state of horticulture, the embellishment of garden scenery becomes a study of such essential importance and frequent application, that it is almost impossible to overrate its consequence, or to insist too forcibly on the large amount of attention which should be devoted to its consideration, especially by all professional men who design to raise themselves above the commonest mediocrity. The indifference with which the subject is too generally treated is much to be deplored; and we are surprised that more united and really energetic endeavours are not made to direct and raise a more refined taste, both among proprietors and those whose occupation leads them constantly where examples abound, and opportunity for tests occurs.

The bare laying out of a garden requires, perhaps, more sound judgment and forethought, together with an intimate acquaintance with the dependent blending and harmonious laws which determine natural consequences, than very many who undertake to direct such operations are aware of. Instead of the proper and immutable principles required as a basis to the work, they have mere empirical rules, or meagre copies torn and distorted to suit the immediate circumstances; and thus it is we so often observe the simplest laws of nature subverted or entirely overlooked. Disappointment and apathy consequently ensue, and the science receives an entailed injury. It is true a great deal has been done for the desired advancement of this taste, in the labours of the late Mr. Repton, Mr. Loudon, and Sir Uvedale Price; and whatever improvement is discernible in the existing style, over that of the preceding century, may fairly be attributed to their able writings. Yet much—very much—more remains to be effected, that will require long-continued and strenuous exertions on the part of those who possess the means, before we can hope to witness the entire banishment of the many incongruities which at present prevail.

There is, perhaps, no part of the art of landscape gardening so little understood or appreciated as the application of water to ornamental purposes; and this is the more remarkable from the indefinite versatility of the forms in which it may be rendered conducive to the heightening of the general effect, and from the peculiar fitness of British scenery for its introduction. In no country is this feature of our landscape excelled, or, indeed, equalled. The noble outline and thick umbrageous foliage of our trees, the gentle variations of the surface, and the general absence of all natural impediments, conspire to form a *tout ensemble* which requires nothing but the presence of the fluid element to render it perfect. Yet, notwithstanding all these apparent inducements, in the majority of cases it is wanting. "'Tis pity," truly; for we really think there is not a garden or domain, of either large or small extent, but would derive additional interest from its introduction in some shape or other; and taking into account the many mechanical aids which exist both for its duction and display, we think it can only require to be brought prominently forward to be made acceptable; and at this season of groundwork operations, we would wish to induce every one who has to superintend either the establishment of a new place or the alterations of an old one, to consider well if it is not possible to add to their other selected features this very desirable one.

We have been led into this subject by the perusal of a pamphlet by Mr. Freeman Roe, hydraulic engineer, &c., entitled "The Handbook of Fountains, and Guide to the Gardens of Versailles;"* in which, besides graphically describing the fountains of this celebrated place, Mr. Roe enters upon a consideration of the most appropriate designs for these very ornamental appendages, showing the fitness of some styles for peculiar situations over others of a contrary character, embodying several valuable suggestions that cannot fail to be of assistance in making a selection. Upon the mechanical details necessary to be attended to in the construction of fountains, the following observations are well worth attention:—"Having determined upon the form or varieties of the jet, according to the design which has been selected, it must be noticed that whatever be its direction, the discharge of water will always be the same, provided that the adjutage or size of the jet, and the altitude of the water in the reservoir above it, be the same. This is a necessary consequence of the law of hydrostatics—the equal pressure of fluids in all directions.

* London: Groombridge & Sons.

Water rising from a small jet or adjutage has sufficient velocity to carry it to the same height as the water stands in the reservoir; but it never entirely does so, being prevented attaining that height from various concurrent causes. These are,—the friction in the tubes between the reservoir and the jet; the friction against the circumference of the aperture or adjutage; and the resistance of the air to the height of water at the top of the spout, and in its ascent. Here the water having lost its momentum rests on the part below, and by its weight obstructs the motion of the ascending column—the resistance from this cause being so great, that the jet is frequently destroyed, the rising water being by fits and starts pressed down towards the very orifice from which it issues. This inconvenience is, however, remedied by giving a slight inclination to the jet, as the particles which have lost their upward motion do not fall back as in the former case, but falling off, leave the rising fluid unincumbered. Such jets as have a slight inclination will, from this cause, rise higher than those which are vertical. In order to make large jets rise higher than small ones, the conduit pipe must be large enough to supply a sufficient quantity of water, experience having shown that if these are narrow, small jets will rise higher than those which are larger. The diameter of the conduit pipe must, therefore, have a certain proportion to that of the adjutage, in order to make a jet rise to the greatest possible height.

" If we compare two different jets, and are desirous that each should attain its greatest possible altitude, the squares of the diameter of the conduit pipes must be to each other in the compound ratio of the squares of the diameter of the adjutages. Thus, if we know by experience the diameter that should be given to a conduit pipe, to furnish water for the discharge of a given adjutage, with a reservoir of a given altitude, we may determine the diameter of another tube to feed a larger adjutage with a reservoir of the same given altitude. Care must be taken also that the conduit pipe increases in strength, in proportion to the height of the reservoir. Where the water contains much carbonate of lime in solution, it is apt to increase and stop up the pipe by its deposition; and whether lead or iron be used, carbonates are formed at the expense of the metal, the corrosive effects of which are more early visible in the destruction of the former. This has led to my giving a preference to the use of glass pipes, which I have just introduced into use, and where neither deposition nor corrosion can take place—an object of great importance, as securing the durability of the pipe, in the conveyance of water, and ensuring its perfect salubrity and exemption from the contaminating effects of lead and iron."

Remarks of this kind, expressed in plain language, cannot fail to have their weight; and all who contemplate works of this nature will find themselves amply repaid by a perusal of Mr. Roe's book. On an early opportunity we shall have a few words to offer on the improved hydraulic ram, a description of which is also given in the book referred to, but our space precludes it on this occasion. The subjoined engraving represents a fountain and rockery executed for Edwin Harford, Esq. by Mr. Roe; with respect to which we only regret that the sketch does not include a more extended view of the spot, as much of the effect is lost from the absence of the associations.

EDITOR.

A SELECTION OF FIRST-RATE CARNATIONS.

SCARLET BIZARRES.

Colcutt's Brutus
Strong's Duke of York
Headley's William Cobbett
Hufton's Patriarch
Twitchetts's Don John
Rainforth's Game Boy
Headley's Achilles
Smith's Duke of Wellington
Eley's Lord Pollington
Martin's Splendid
Elliot's Duke of Sutherland
Lee's Colonel
Wild's Perfection
Willmer's Duke of Northumberland
Roi de Capuchin
Lodge's True Briton
Bucknall's Earl Fitzhardinge
Finnemore's Meteor

PINK AND PURPLE BIZARRES.

Crask's Norfolk Champion
Eley's Lord Milton
Puxley's Sir Robert Peel
Mansley's Robert Burns
Eley's Duke of Bedford
Barnard's Duke of Roxburghe
Eley's Hugo Meynell
Seeley's Princess Boyal

Holmes's Count Paulina
Jacques's Georgiana
Davidson's Vainqueur
Puxley's Prince Albert
Chamber's Kate
Greig's Mary
Venables' Spitfire
Cartwright's Rainbow
Pickering's Taglioni

PURPLE FLAKES.

Strong's Esther
Turner's Princess Charlotte
Pollard's First Rate
Prince de Nassau
Eley's John Wright
Willmer's Solander
Millwood's Premier
Mansley's Beauty of Woodhouse
Martin's President
Christian's Excellent
Nix's Lady Chetwynde
Mansley's Bonny Bess
Eley's Mango
Hogg's Colonel of the Blues

SCARLET FLAKES.

Wallis's Beauty of Cradley
Oldam's Defiance
Simpson's Marquis of Granby
Twitchett's Queen of Scarlets
Willmer's Hero of Middlesex
Brown's Bishop of Gloucester
Greesley's Mary Ann
Bucknall's Ulysses
Wigg's Earl of Leicester
Jones's Brilliant
Eley's North Midland
Chadwick's Brilliant
Wilson's William the Fourth
Addenbrook's Lydia

ROSE FLAKES.

Greesley's Village Maid
Hyron's Defiance
Askworth's Miss Walker
Brooks's Flora's Garland
Eley's Lady Eley
  Lady Egerton
  Lovely Ann
Hyron's Queen Victoria
Wood's Rosabella
Lowe's Marchioness of Westminster
Elliott's Duchess of Sutherland
Hayles's Lovely Nancy
Hufton's Rosea
Fletcher's Duchess of Devonshire
Wilson's Harriett
Barrenger's Apollo
Willmer's Endymion
Hoyles's Beeswing

C. EMBLETON.

ELECTRO-CULTURE.

At a recent meeting of the Royal Botanic Society, Edward Harmer Sheppard, Esq., F.R.B.S., read the following interesting paper on electro-culture, including an account of an experiment instituted in the garden of the Society during the last summer.

"In the early part of the past spring my attention was directed to the subject of promoting an increased growth of plants by means of some particular application of electricity or galvanism. Considering that this is quite a new subject, and at present very little understood, and that until the last few months it has never received that attention which its importance deserves, it is our duty to be very careful in our experiments, and very guarded in our inferences from them. The following description and remarks, therefore, are brought forward rather with a view to excite attention and induce further research, than to propound theories or to make assertions which, instead of promoting the object in view, might only tend to mislead.

"It has long been believed that electricity produces a stimulating effect on vegetation. We read that as far back as the middle of the last century a Mr. Maimbray, of Edinburgh, announced that he had succeeded in proving that single plants, separately electrified, grew more rapidly and vigorously than those which were not so treated; and since that time this experiment has been frequently repeated, and with the same results. It has been proved that the growth of a common Hyacinth in a glass is much accelerated by giving it daily a few sparks from the electrifying machine.

"Sir Humphrey Davy likewise instituted experiments upon the germinations of seeds, and he noticed that voltaic electricity powerfully affects plants, and that they grow very rapidly near the negative pole of the voltaic battery, and not quite so rapidly near the positive pole. He also observed that drooping plants may be made to revive on the artificial application of electricity. A highly charged state of the atmosphere too causes a more healthy colour, and a more rapid development of leaf and branch; every leaf, indeed, is proved to be a natural conductor of electricity, collecting the electric fluid which surrounds it, and appropriating it to some necessary, but as yet unknown, purpose in its economy.

"In the first week in May I buried in that part of the gardens of the Royal Botanic Society appropriated to agricultural experiments a plate of sheet-copper, two feet in length and nine inches in depth, and also, at the distance of about nine feet, a plate of zinc of the same dimensions. These plates were both placed in an upright position, facing the magnetic north and south, and connected together by means of two copper wires, which extended between them at the height of about three inches above the ground. Each end of the wire was soldered to the upper corners of the plates, thus forming a galvanic battery, the moist earth completing the circuit.

"Within this parallelogram of ground were sown in rows, parallel to the plates, lucerne, saintfoin, clover, red globe turnips, and yellow mangold wurtzel. Another parallelogram of ground, of precisely equal size and quality, and at the distance from the former of only eighteen inches, and uninfluenced by galvanism, was formed out at the same time and sown in a similar manner, with an equal quantity of seed. No manure whatever was made use of on either side. In the course of three or four weeks, when the seeds had germinated the difference between the two plots of ground was very obvious. The seeds on the galvanized side failed to a considerable extent, and the mode of their failure was this: that soon after the appearance of the cotyledons above the ground the young plants began to droop and die off in a peculiar way. In this manner the clover and the saintfoin, which had been placed nearest to the metallic plates, were destroyed to the amount of two thirds, and the lucerne of one third; while the mangold wurtzel and the turnips, which were the furthest from the plates, lost only about one sixth of their number. These different degrees of injury received by the young plants would probably depend upon the separate and relatively tender or more hardy nature of each species. It was, however, at this time evident that a greater amount of galvanic power was generated than is congenial to the germination of these particular seeds. All those plants, however, which survived the first five or six weeks continued to live, but, with the exception of the turnips and mangold wurtzel, they were not at any time so healthy or so strong as those on the other side. But the turnips and the mangold wurtzel soon presented a different character from the rest, putting on a more vigorous appearance, as well as a more rapid growth, and by the month of August they had acquired a larger size than the others, which were growing in the natural soil. They still continued to increase rapidly in bulk, and by the 20th of October one of the turnips had reached the enormous size of forty inches and a quarter in circumference, and was still increasing. This is, I believe, much the largest dimensions this variety of turnip has ever been known to reach. I then began to feel but little doubt that in the succeeding six or eight weeks, during which all such plants continue to increase, it would attain a most unheard of bulk. But on that day, and when it had begun to excite considerable attention and interest among the Fellows of the Society, a most unfortunate occurrence took place, and my hopes were doomed to disappointment; for it was then pointed out to me that some person had wantonly thrust a stick into the heart of this fine root.

This injury put a complete stop to its further growth, and in ten days afterwards I gave directions that this and all the other plants should be dug up. They were then carefully measured and weighed. The largest turnip was found to measure 40¼ inches in circumference, and to weigh 16½lb. The aggregate weight of the turnips on the galvanized plot was 27½lb. On the other plot of ground, and growing naturally, the aggregate weight of the turnips was 5½lb. I should mention, however, that one of the turnips on this side had become rotten, and had been nearly eaten by insects. This was an accidental circumstance, and had it not occurred about 2lb. more in weight would have been added to the last mentioned amount of 5½lb. The aggregate weight of the mangel wurtzel on the galvanized side was 14½lb. On the other side, and growing naturally, it was exactly 10lb. Thus there existed a large difference between the produce of the two plots of ground; but how far the above increase on the galvanized side was really due to this cause, or to any unknown accidental circumstance of seed or soil, it would seem premature to decide from the result of a single trial. It is a subject that I trust will be followed up by others, and carefully investigated."

ANDROMEDA FLORIBUNDA.

The Andromeda floribunda is one of the most ornamental of our hardy shrubs. It is evergreen, maintaining the rich glossy colour of its profuse small permanent shining leaves, quite uninjured by the most intense frost of the severest winters. In habit it is a compact round dwarf bush in appearance, not likely, under any circumstances, to attain more than four or five feet in height. The flowers are produced on the extremities of the shoots of the preceding year, and the dense clusters of little angular buds are formed early in the summer, and by the month of August appear ready to burst open, and mantle the whole plant with a sheet of snowy white blossoms. The expansion of the flower does not, however, take place before April or May.

The native country of the Andromeda is North America, and it was probably first brought to this country in 1807 by Mr. Lyon, who was sent out as a plant collector from the Marquis of Bute, for, amongst the plants which he discovered and brought over was the Andromeda floribunda. One of these plants (if more than one were then introduced,) was planted in the pleasure grounds of the Earl of Essex, at Cashiobury Park, and when Mr. Anderson, who was many years gardener to the late Earl of Essex, took the charge of the gardens, the Andromeda had become of considerable size. Plants of the same species were subsequently introduced from North America, which came into the possession of the late Mr. Jenkins, who then occupied as nursery ground the inner circle of the Regent's Park, which is now the garden of the Royal Botanical Society of London. At the time the Society took possession of the ground, they purchased a large portion of the nursery stock, which included several hundred plants of the Andromeda, many of which are still in the possession of the Society.

As the Andromeda has been grown in this garden for many years, and with greater success than is observed to be the case elsewhere, and also because in many instances in other gardens has been entirely lost, and lastly on account of the very general impression that the species is difficult to keep alive and in vigorous health, the insertion of these remarks may not be devoid of interest. The situation in which it is here grown is on a gentle declivity to the west, and, with the exception of a thin and dwarf hedge of privet, the plants are unprotected by shade or shelter of any kind. The subsoil is a strong and adhesive clay, and the beds in which the plants have usually been grown are about five feet in width. The bottom is made concave, and on this is placed about fifteen or eighteen inches of peat earth, with the edges of the clay bottom raised within a few inches of the surface. By this arrangement the plants are easily preserved in a moist state during dry weather by occasional waterings, and the direction of the beds being east and west, the excess of moisture, if any, can readily pass off at the lower end.

It may also be worth while to mention some of those conditions which are observed to be decidedly adverse to the health of this species. In some instances it has been planted in a border on the south side of a brick wall, and exposed to a dry air, and the heat reflected from the bricks. Plants in this situation, after nearly two years' attention, are very unhealthy. It is also to be remarked that, when kept in pots, no matter what the situation may have been, they have ultimately, and in the course of a few months, assumed an unhealthy appearance. In the garden of the Royal Botanical Society they have occasionally been kept in pots; but in no instance have they continued in health when so treated. Perhaps no treatment to which this plant has ever been submitted appears so immediately prejudicial to its health as when placed in pots in a dry and hot situation, exposed to the rays of the sun, or within the influence of heat reflected from surrounding objects, such as glass or brick walls. It is not, however, to be inferred from the preceding remarks that it is impossible, or even improbable, that the plant in question can be cultivated with success when the roots are confined with the limits of a garden pot. Indeed the progress of cultivation is such that the successful cultivation of any plant whatever is a matter of no uncertainty. Still, with *ordinary* treatment, it does thrive much better in the open ground than in pots.

The most successful mode of increasing this admirable little shrub is by layering, and this operation is generally performed about the month of September; the shoots require two years to root before they are taken off.

The Andromeda Floribunda is a plant admirably adapted for forcing. The flowers expand freely in an elevated temperature, and remain in perfection for a considerable length of time. The purity of their snow-white blossoms, relieved by the dark green foliage, forms an admirable contrast amongst other plants which are submitted to this mode of treatment; and thereby the plant is rendered an acquisition to those who delight in a supply of winter flowers. To effect this purpose, the plants should be taken up carefully in the early part of the month of October, and be placed in pots of suitable size, and in proper soil; they may then be placed in any situation where they will be protected not only from wet, but also from extreme cold. It is not by reason of any tenderness or delicacy of constitution that protection is necessary, but it must be recollected that protection thus afforded to plants intended for forcing is the first advance in the necessarily progressive increase of temperature, and by this mode of applying heat alone, the end in view may be hoped for with any certainty of success. When submitted to this moderately increased temperature, they will be in flower in about a month, or six weeks, varying according to the particular period; that is, whether in the early or in the latter part of the winter season. After flowering, the plants should be removed to a cold frame, which should for a time be kept comparatively close, and a full exposure gradually effected. About April they should be again planted out, and the points of the fibrous roots should be slightly and carefully disengaged from the ball of earth; they will then recommence their growth. The principal requisites are coolness and moisture in the soil during the summer, or, at least, until their annual growth is completed.

The plant is most readily propagated by layers, which, if put down in April, will be well rooted, and in a fit state to remove in two years, and the earlier they are taken off when sufficiently rooted the better; for if allowed to remain they grow rapidly, and if they are in a crowded state, as, from the nature and habit of the plant, is generally the case, they become drawn up and less branchy on the lower part of the stem; on the other hand, if taken off early, they assume a dwarf bushy habit, and are feathered quite down to the ground.

It may be interesting to mention that of some large plants now growing in the garden of the Royal Botanic Society, and which were taken off as rooted layers in the spring of 1837, one has attained 3 feet in height and 13 feet in circumference.

GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

Cuticle. The skin or covering.

Cyaneus. Pure bright blue.

Cyathiform. Concave. Synonymous with Cupularis.

Cyclical. Rolled into a complete circle.

Cylindrical. Approaching or having the form of a cylinder.

Cymbiform. Shaped like a boat.

Cyme. A peculiar mode of inflorescence, in which the peduncles and pedicles, or footstalks of the numerous flowers, are of various lengths; so that the flowers themselves are all level.

Cymose. Bearing flowers in cymes.

Dacryoideus. Applied to describe a figure resembling a pear, tapering from a rounded base upwards.

Dactylosus. A figure intermediate between a cylinder and a cone, as in the flower spikes of many verbenaceæ.

Dædalous. Having a broad, irregularly divided apex.

Dasyphyllus. Having leaves either densely covered with short, thick hairs, or growing close together in clusters.

Dealbatus. Having a silvery appearance. Gray, covered with a white mealy substance.

Deciduous. Descriptive of that portion of the vegetable kingdom which annually and at a certain time lose all their leaves. The term is also applied to other organs than the leaves, as the calyx or corolla, when they decay or fall sooner than the connected parts.

Declinate. Twined on one side.

Decumbent. Having a trailing habit, with an inclination to grow upwards at the extremities.

Decurrent. Decursivus. Applied to a leaf whose sides continue down the stem to which it is attached, beyond the point of union of the midrib and the stem.

Decussate. Decussativus. Where the leaves are placed in opposite pairs, and each alternate pair crosses the preceding at right angles. Synonymous with Brachiate.

DESCRIPTIVE LIST OF NEW PLANTS.

ACANTHACEÆ—*Didynamia Angiospermia.*

Ruellia macrophylla. This fine herbaceous plant is a native of Santa Martha, according to Vahl, who first discovered it. He supposed that it habitually produced only two flowers on a stalk, while, in fact, it bears large branching forked panicles, loaded with flowers of a glowing scarlet, and nearly three inches long. In that state it was exhibited at a meeting of the Horticultural Society in October last, by Mr. Carton, gardener to his Grace the Duke of Northumberland, and it was indeed worthy of the noble collection which furnished it. This species requires to be kept in a stove, and, being a plant of free growth, will succeed in almost any sort of soil. During summer an ample supply of water should be given to its root, and syringed over head twice a day. After flowering it should be cut back, to secure a supply of young shoots from the bottom for flowering the following season. This may be done once or twice, but for such free-growing plants, it is best to renew them every three years.—*Bot. Reg.* 7—46.

CAPRIFOLIACEÆ.—*Pentandria Monogynia.*

Abelia rupestris. A small spreading bush, with deciduous bright green foliage. The branches are very slender, covered with fine down, and deep reddish brown when fully exposed to the sun. The leaves are opposite, ovate, distantly serrated, on very short stalks, quite smooth, except at the midrib, on the under side, where they are closely covered with short hairs. The flowers are pure white, (in the figure they are a pale rose colour,) something like those of the honeysuckle, and come in pairs from the axils of the leaves belonging to the short lateral branches. The corolla, when expanded, is half an inch long, funnel-shaped, downy, with a spreading border of fine convex, ovate, blunt, equal lobes, beyond whose tube extend four smooth filaments. From its being sweet-scented, and the length of time it remains in flower, this will be of considerable importance as a greenhouse plant, and, should it prove hardy, it will doubtless be a good addition to the shrubbery, in consequence of its flowering in autumn.—*Bot. Reg.* 8—46.

RANUNCULACEÆ.—*Polyandria Di Pentaginia.*

Pæonia Wittmanniana. A more remarkable acquisition than a yellow pæony, not a pale straw-coloured species,-which is only a spoiled white, but a true yellow flowered plant, does not often occur. It was sent to the garden of the Horticultural Society in October 1842, by M. N. de Hartwiss, the Director of the Nikita Garden, in the Crimea, to whom it was sent by Count M. Worontzoff, from Abcharia. The species has much the appearance of *Pæonia cretica,* is quite hardy, grows where any other pæony will grow, and flowers in May. At present we believe that the plant in the garden of the Horticultural Society is unique in this country. We understand that twenty-five guineas was demanded for a single plant of it in one of the great continental nurseries. The Mr. Whittmann after whom it is named was, we believe, a traveller in the Taurian Caucasus, and afterwards gardener at Odessa.—*Bot. Reg.* 9—46.

BIGNONIACEÆ.—*Didynamia Angiospermia.*

Adenocalymna comosum. A very beautiful stove-climber, forming part of a highly natural group of the old and very extensive genus Bynonia, inhabiting Brazil and Guiana. The species makes a fine appearance with its copious flower-buds, which look like a large cluster of hops in September and October, and as soon as the bracteas fall the conspicuous yellow flowers burst forth. They are very large, trumpet-shaped, having a wide spreading limb, which is five lobed. It was sent to the Royal Gardens, Kew, in 1841, from Rio, by J. Lynd, Esq.—*Bot. Mag.* 4210.

VERBENACEÆ.—*Diandria Monogynia.*

Stachytarpheta aristata. This fine suffruticose plant was detected in South America, and probably at Santa Martha, by Von Rohr, and has been sent from thence by Mr. Purdie to the Royal Gardens, Kew, where, in a moist stove, it produced its handsome dense spikes of extremely rich deep, almost black, purple flowers, in October 1845. These flowers begin to expand below, and continue opening upwards in succession, throughout the whole of the elongated spike. No species of this genus yet cultivated is comparable to this for richness of colour.—*Bot. Mag.* 4211.

GESNERIACEÆ.—*Didynamia Angiospermia.*

Sinningia velutina. This is the handsomest of the genus

Sinningia, with large, ample, dark green, velvety leaves, the younger ones and petioles tinged with red, very large red calyces, and large sulphur-coloured flowers. All the species are natives of Brazil, whence the present was introduced to the garden of the Horticultural Society in 1826. A plant of it sent, by Messrs. Rollison, under the name of *S. Helleri*, flowered in the Royal Gardens, Kew, in June, 1845. It requires the heat of a stove.—*Bot Mag.* 4212.

Gloxinia pallidiflora. A species resembling the old *G. maculata*, but of more slender habit, and having smaller and paler flowers. The lobes of the calyx are much narrower and more recurved, and the stem is spotless. It was sent from Santa Martha by Mr. Purdie, and flowered at Kew in October, 1845.—*Bot. Mag.* 4213.

MALVACEÆ.—*Monadelphia Polyandria.*

Hibiscus Jerroldianus. A very handsome species, possessing large, intensely rich deep crimson flowers. It was raised at Chatsworth, in the spring of 1843, from seeds gathered in the Brazils by Dr. Lippold, and presented to his Grace the Duke of Devonshire by Mrs. Berry. It is herbaceous, and planted in the borders of the large conservatory; forms handsome specimens, varying from four to nine feet in height, composed of numerous shoots, well clothed from the bottom upwards with their fine palmate foliage, and freely developing for a long period their splendid flowers. The name is a compliment to Mr. Douglas Jerrold, with whom, as an author, every one must be familiar.—*Pax. Mag. Bot.*

ORCHIDACEÆ.—*Gynandria Monandria.*

Mormodes Cartoni. From the collection of orchideous plants sent home by Mr. Purdie, from the interior of Santa Martha, at the foot of Sierra Nevada. It first flowered at Sion Gardens, under the management of Mr. Carton, in compliment to whom it is named. The flowers are orange-coloured, closely marked with crimson lines. Its nearest affinity is with *M. aromaticum.*—*Bot. Mag.* 4214.

CALENDAR FOR MARCH.

The enthusiast in flowers will find the number of his enemies increase as the season draws out, and his favourites begin to develope their beauties. The green-fly, the thrip, and the red spider will begin to multiply as the light and heat of the year becomes of greater duration. It will, therefore, be worth while to take a slight review of these enemies, and of their points of attack, in conjunction with the best means of getting rid of them.

The species of green-fly are very numerous, especially if we consider as such the individuals of the different genera—*Aphis, Cinara,* and *Eriosoma*—which we may conveniently do in the present case, from their similarity of appearance and economy. Taking them therefore collectively, we include the common green-fly, as well as the American blight which infests apple trees, the similar insect which is found in great quantities about the roots of lettuce plants, especially in summer and autumn, and many others, for there is scarcely a plant that is not infested with them, more or less, and on different plants the species of insects are also very often different, whilst some, as the oak, are attacked by many species of these insects.

The species of thrip appear to be far less known than the green flies, but there is no doubt they are very numerous. They commit great ravages on the tender shoots and leaves of plants, by puncturing them and extracting the sap, leaving the parts of a dry brown, dried up consistence. The examination and determination of the different species of these minute insects would be a source of great interest to an amateur gardener with sufficient leisure.

Little doubt can be entertained that there are also several species of red spider; but, like the last named insects, they have not received that attention which the extent of their ravages demand. In some seasons they are so numerous as to materially injure the foliage of trees, especially those of the lime, whilst in hot-houses they are sure to be very destructive, if the house is kept in too dry a state.

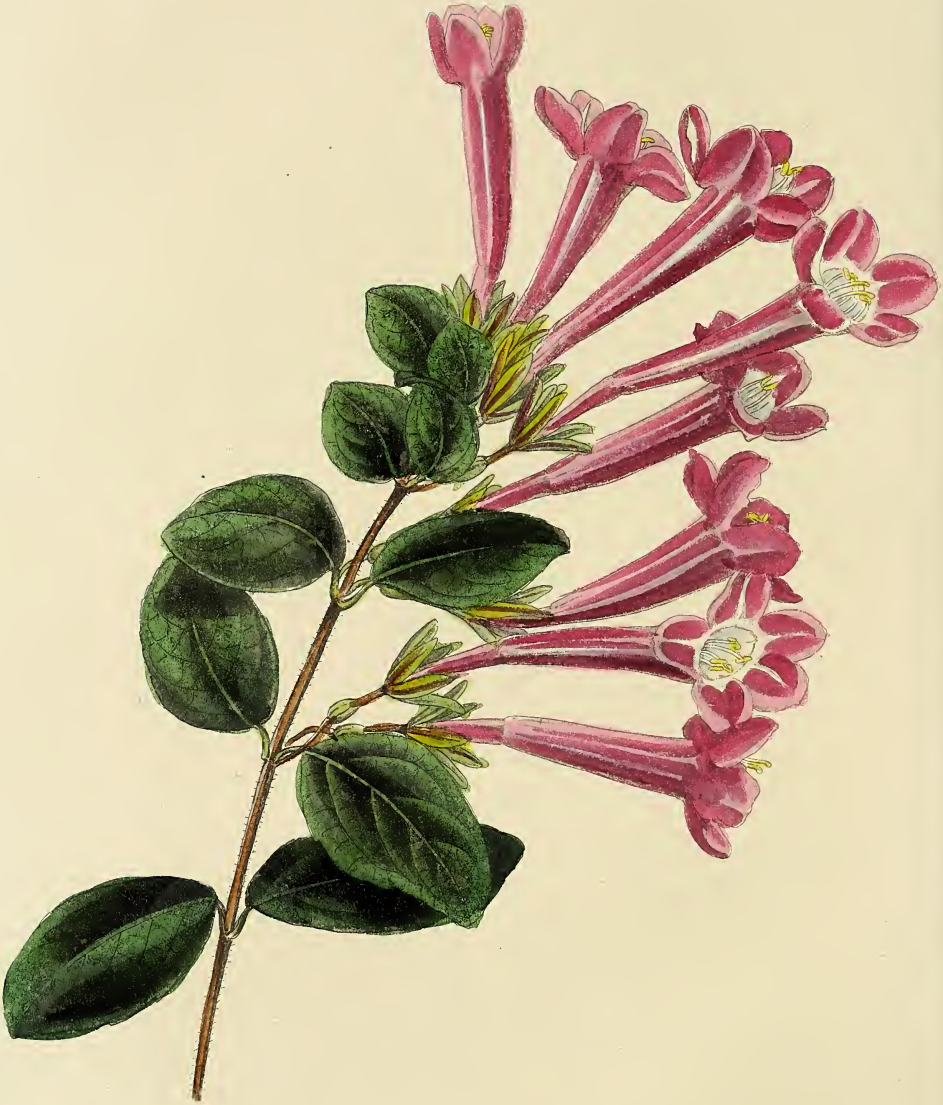
For the destruction of these pests the best application for the common species of green-fly, is to fumigate the houses or pits infested with tobacco, filling the place densely full of smoke as often as the appearance of the insect renders the application necessary. This will in general destroy the thrip also. To the red spider a moist atmosphere is very inimical, and, in conjunction with occasionally washing the flues or heating pipes with white-wash and sulphur mixed in it, they may be kept under. If, however, they are very numerous on the plants the leaves should be well dusted over with flour of sulphur; but the necessity for this ought not to arise.

In the flower garden attention should be paid to protecting beds of bulbs from hail, or too much wet, by coverings of mats or other materials at night, and also during the day, if necessary. The seeds of hardy annuals should also be sown where they are intended to remain. The lawns and walks should also receive great care, as on their management now depends much of their neatness and beauty for the rest of the season.

The greenhouse plants should be carefully attended to in watering, staking out, and making the greatest display of those advancing into flower. All air should be given that can well be admitted, without exposing the plants to cold and drying winds. Repot all plants advancing in growth, as heaths, &c., taking especial care that the drainage in all cases is perfect. Begin to forward the plants intended for bedding out in the flower garden, whether in houses or pits, and continue to propagate to the necessary extent.

Similar directions may be applied to the plant stoves, taking care to gradually increase the heat as the days lengthen, and also the supply of moisture. Continue to shift any plants whose growth may render such a step requisite, and be careful that the supply of water is not too great for the state of the roots. Foreign seeds should also be sown early in the month, and imported Orchidaceæ, bulbs, or other plants, should also be induced to commence their growth.

D. M.



ABELIA FLORIBUNDA.

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ABELIA FLORIBUNDA.

WITH AN ENGRAVING.

At one of the meetings of the Royal Botanic Society last summer, our attention was caught by a dwarf, half-pendent growing little bush, nearly covered with lovely crimson blossoms, exhibited among the new plants, by Messrs. Lucombe, Pince, and Co., of Exeter. It was there called Vesalia floribunda, an appellative it seems to have received in some of the continental nurseries from whence it was received, soon after, this name was objected to as a barbarism, and by some the plant was referred to the genus *Russellia,* indeed it was supposed to be the *R. floribunda* of Don's edition of Miller's Dictionary, but the description of that species does not agree with the present plant in many important particulars; it is represented as having quadrangular branches and stem, with opposite ovate cordate leaves, downy on the midrib beneath, marks fully sufficient to distinguish it from the species now figured.

From the characters given in a recently published synopsis of the genus *Abelia,* by Dr. Lindley, in the 'Botanical Register,' there remains no doubt of its belonging to that genus, and as we do not find any of the species therein enumerated to be at all like this plant, we continue the specific term by which it is best known, and which it well deserves. It is a plant with many slender, somewhat drooping, branches, whose tenuity nearly equals that of the branches of the well known *Sollya heterophylla;* they are amply covered with small deep green, slightly and irregularly dentate, leaves, and terminate in large clusters of very handsome axillary flowers, the tube of these is from an inch and a half to two inches in length, the limb is five parted, expanding nearly or quite flat, and the colour is a pleasing bright rosy-crimson, and being copiously produced through the greater part of the summer, the plant is indeed an object of great interest, it seems to us to be one of the few which, after the charm of novelty is passed away, are destined to be continued in collections for their own intrinsic loveliness; added to its other qualifications is the not less valuable one of possessing a robust constitution, so much so as to render it manageable with only inferior accommodation, and under circumstances that would probably prove fatal to many others, which still are ranked as greenhouse plants; in fact it appears to be quite possible that it may be found hardy, though, from its great beauty, it would be an extravagant act to transfer it to the open ground, the advantage, however, of such a character, in a cultural view, cannot fail to be apparent, and will offer another inducement to its extensive adoption.

Our figure was taken from the plant mentioned at the beginning of this paper, and we are also indebted to the obliging attention of Mr. Robert T. Pince for the following particulars relative to its history and cultivation. "We received the original plant from the nursery of M. Galleotti, of Brussels, who had imported it from some part of South America; it is a hardy greenhouse plant, and thrives well in a compost of rich loam and sandy peat, in equal quantities; it should be placed on the front shelf of the greenhouse, where there is plenty of light and air. I think it will prove a very great acquisition to our collections, as it flowers so abundantly and is easily cultivated."

Before we leave this subject it may not be out of place to remark, that productions of this nature, though they are termed hardy, and, on the whole, require much less care or management than the ordinary description of plants of the same class, yet it must not be supposed they can be neglected with impunity, or that the principles which guide the operations in the culture of the more tender forms may here be departed from, without endangering the existence of the individual. What is meant in this case by the term hardy, is simply that the plant, being a native of elevated districts, and therefore naturally capacitated to endure a low temperature, does not require the application of artificial heat to preserve it in health, or at least in much less degree than others that may be derived from the lower slopes or table land of even the same country. Not being acquainted with its exact habitat we are of course unable to speak as to the positive extent this may be carried, but the experience already had with it leads to the conclusion that, if it will not bear actual frost, a temperature but a very few degrees above that point is by no means prejudicial, and being in all probability a native of the free mountain air, it will of course require a full supply on every favorable occasion to ensure its continuance in health. With regard to the training of the plant, it appears to be improved by frequent stopping while young, inasmuch as that so many more branches are thus obtained; if this is repeated three or four times the plant will assume a dwarf and dense habit, when it may be allowed to grow unrestrained, lest by persevering in the "stopping" the production of blossoms be prevented, in consequence of their being terminal on the branches; a few slight sticks will probably be required to support the stems, but they should be so placed as to preserve the graceful pendent character of the flexile branches, which we regard as one of its chief attractions, being of uncommon occurrence in plants of the same class. Its propagation we anticipate will be found as easy as the other part of culture, doubtless, half-ripened shoots taken off in summer, potted in sandy peat, covered with a bell and placed in a very moderate heat, will root readily, and established specimens may be formed in one or two seasons. In botanical classification the genus Abelia is included in the natural order *Caprifoliaceæ*, not an extensive one certainly, but rich in free-flowering handsome shrubs; in the Linnean arrangement the genus is placed in the class *Pentandria*, and order *Monogynia*.

EDITOR.

AURICULAS.

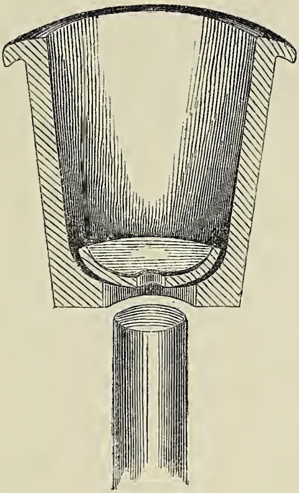
THIS month the florist reaps the first reward of his past cares, in the rich display of his auricula flowers. In the southern districts they have, like all other vegetation, exhibited for some time the effects of this most extraordinary season, insomuch that by the middle of March is was here necessay to remove the principal blooming plants to the shelter of a north wall, or the flowers would have been expanded and gone long since, and some trouble is likely to be felt by those who grow with the view of competing at floral shows, in the preservation of the flowers through the present warm and summer-like weather. Let me caution the beginner against thinning the pips too rapidly, for it may be that the small florets are all that he has left when the time arrives; and in preference to removing them as in ordinary seasons is usual, it perhaps will be better policy to take away the larger and more forward flowers, it is an alternative much to be regretted certainly, but the only one at all available in many collections; yet, notwithstanding the difference it will necessarily cause in the size of the flowers to be exhibited, it must be admitted to be better to have even small flowers than none at all. Some compensation may perhaps be made by the liberal application of tepid liquid manure just now, and by keeping a genial moist atmosphere about the plants.

An auricula bloom may be kept good for about a fortnight from the time of its perfect expansion, and this will afford data on which to determine whether it is necessary to sacrifice the first flowers or not, and under the circumstances it will be well to decide as quickly as possible, at any rate it will be advisable to reserve a few more pips than are actually required, to take the place of those which may fail at the last minute; and in dressing the truss, let the centre be well opened, that the youngest florets may have air, and thus gain strength, so that, if required, they may be of some service.

In this process of retarding, some tact is necessary to prevent the blooms "setting" as it is termed, for if exposed to cold winds or frosts in their present state the flowers become crippled, and refuse to expand further, so that though shading may be required in the day, they must be carefully covered up at night or whenever the weather is unfavorable. The plants themselves will no doubt be benefited by the longer period of growth which is thus afforded them, but their removal from the sun should take place at an early date, so that they may not become enervated from its effects. Seed will probably be scarce this season.

PHILLANTHUS.

GARDEN MECHANICS.



In the process of repotting large specimen plants a difficulty has long been complained of, in the removal of the subject from the pot in which it has been growing, owing to the hitherto unavoidable necessity of either breaking the pot to pieces, or incurring great risk of damage to the plant, by turning it over and about to loosen its hold. Instances are by no means rare of fine specimens, the result of years of care, being thus disfigured to an irreparable degree by an accident against which no foresight would avail, and, therefore, any contrivance calculated to remove the inconvenience and danger deserves our cordial support. This has been effected by the ingenuity of Mr. G. Fry, of Blackheath, who has lately invented, and very properly registered, a new form for the pots employed for this purpose. The accompanying woodcut represents a sectional elevation of Mr. Fry's pot; from which it will be seen the improvement consists in having a much larger orifice in the bottom of the pot than is usual: and to cover this and prevent the soil falling through, a detached moveable bottom, with a hole for drainage in the centre, as in the ordinary one, is made to slip into the pot; this is called the drain-cup. The potting is performed in the usual manner; and when it is desired to shift the specimen, or examine the roots, the drain-cup is placed on the top of a stout block of wood, as shown in the cut, and by pressing the pot downwards the entire ball of earth which it contained is, as it were, elevated to the view, and may then be removed with every facility, and without so much as agitating a leaf of the plant. The contrivance cannot fail to be properly estimated by all interested. It is called the West Kent Garden Pot, and was registered on the 6th of February of the present year.

Another highly useful instrument to all who have the management of stoves or early forcing-houses, with greater pretensions to a scientific character, has also, in the course of the past month, been presented to the public, in the hygrometer of Mr. Simmons. A ready means of ascertaining the amount of moisture contained in the atmosphere of houses of this kind has long been a desideratum. The thermometer gives us the temperature with sufficient exactitude for any practical purposes ; but it is well known to gardeners that successful results do not depend alone on the elevation or depression of temperature. To form a genial atmosphere, in which vegetation will proceed with the desired vigour, it is essential that a due proportion of aqueous particles be present; an elevated arid atmosphere, instead of affording nourishment to the plants, is actually exercising the directly opposite influence, by depriving them of the moisture of their systems so necessary to their existence. This is a truism, but of infinite importance. That all heating apparatuses, with the exception of the tank system, have a tendency, in the rarefaction of the air, to abstract its moisture, is also known, and hence the practice of throwing water on the paths and stages to meet the demand thus occasioned; this, however, in the absence of a registering medium, is but a haphazard method of maintaining the equilibrium of the atmosphere, which must frequently be loaded with vapour to saturation, and again be dry as the parching plains of a desert: presenting fluctuations that cannot be other than injurious to the plants which are subject to them. To obviate these baleful influences the hygrometer of Mr. Simmons is a powerful agent; for with its assistance it is as easy to preserve any required amount of moisture, as with that of the thermometer it is to regulate the temperature.

For the construction of the instrument advantage has been taken of the expansive properties of wood when wetted—a thin slip of mahogany being the motive power, which, acting by means of a silken thread passed over an axle, gives motion by its contraction in drought to a hand like that of a clock, and this, by working over a dial plate, marks the amount of moisture which surrounds it. Its action is instantaneous with any change in the atmosphere. In an Orchidaceous house it marked in the morning 35°; in order to test it, the instrument was taken into the boiler shed, where it shortly drew round to 90°, and on returning it to the house it again resumed the original position. In the middle of the day the sun shone brightly, and a portion of fresh air was consequently admitted into the house, which caused an immediate abstraction of moisture to the amount of 25° by the instrument. The value of such an invention is scarcely to be appreciated, and we predict it will prove a severe test to many of the existing modes of heating, if it does not cause an entire alteration of the means employed.

Under this head we may also mention the improved hydraulic ram of Mr. Roe—not as a thing absolutely new, but as an extremely useful auxiliary to that vitally essential adjunct to every establishment, a good supply of water. The immense expenditure of both time and money in the laborious operation of pumping is incalculable; in many places where, too, at a short distance, a large volume of the fluid is absolutely running away, without affording the slightest benefit to its possessor. In such places, or wherever a fall of a few feet can be obtained from the head of water, and the means of providing for the escape of the waste, a ram of this description will afford a constant supply, without the least manual assistance. We subjoin an account of it: "Since the original introduction of the hydraulic ram of M. Montgolfier, many suggestions for its improvement have been made and adopted. The first essential improvement was that made by his son, and secured by patent in this country. The operation of the latter was much more effective, amounting to no less than eighty-four per cent., whilst the length of the tube was much less than in the original machine. These improvements consisted in the addition of a small shifting valve, which serves to introduce a quantity of air into the head of the ram at each movement or elevation of the water, from whence it is driven by the next movement into the air vessel, which would otherwise become filled with water under a high pressure. In the interior of the head of the ram is an annular space surrounding the frame of the stop valve, containing a small volume of air, which cannot be forced into the air vessel, but which at the first instant is compressed by, and receives the effort of, the moving water. This is called the air matrass, and by means of which the stop valve is shut with less noise, the pipe having a diminished strain thrown upon it, and all the operations taking place with so much ease that the machine is less exposed to be shaken and put out of repair.

" The end of the pipe or body which receives the water of the reservoir is formed like a trumpet mouth, the length of it being regulated by the fall of water which is to produce the current. The pipe is composed of several lengths, screwed together by flanches, or other similar means; but it is in the end piece, which is called the head of the ram, that the moving parts of the machine are placed. This extremity is a hollow sphere, the diameter of which is nearly twice as great as the bore of the pipe; the upper part of the spherical end is flattened, so as to reduce it to the segment of a sphere with a flat circular surface on the top, in the centre of which surface is a large circular opening to receive and hold the seat of the stop valves at which the water issues, but when the valve is closed it prevents the water from passing. By this arrangement, when the valve opens the water descends perpendicularly into the hollow sphere, leaving a free passage through the opening. The valve is guided between three or four perpendicular stems, which have hooks formed at the lower ends, by which it is supported when opened; these stems are fixed by screws, so that they can be regulated to allow the valve to descend more or less, and open a large or smaller passage. The valve is hollow, having a flat circular plate of metal, with a hollow cup or dish of the same material attached to its lower surface; this renders the valve lighter in the water, giving it a convex surface on the lower side, which, when opened, corresponds in curvature with the inferior concave surface of the spherical end of the head of the ram. The seat of the valve is composed of a short cylinder or pipe, the opening of which is much greater than the transverse section of the body of the ram, whilst the short cylinder is screwed by its flanch into the opening of the upper surface of the head. The flanch of the seat is so formed as to have an inverted cap round the upper part of the short cylinder, forming a circular channel or annular space without the head of the ram, which will contain air, and from which the latter cannot escape when compressed by the water. This air it is that is called the matrass, and the shifting valve is at the end of a small pipe which leads from the matrass to the open air; the shifting valve opens inwards in order to admit the air to enter into the matrass, and to prevent its return there is another small valve which opens outwards, whose object is, in addition, to admit a certain quantity of air, and then to shut and prevent any further entrance.

"On the outside of the seat of the stop valve, or over the aperture in the head of the ram where the water issues, another stop valve is applied, similar to the internal valve before referred to, which shuts down on the outside of the seat. The upper part of the pipe or head is made flat at the part near the end, where it enlarges to a sphere; and this flat surface has several narrow openings across it, which are covered by as many flap valves made of leather, in order to allow water to pass out and prevent its return. On each side of the head of the ram, at the part opposite these flap valves, is a hollow enlargement in the form of a segment of a horizontal circle, and the two enlargements taken together form a circular basin, through the centre of which the pipe of the ram passes; this circular basin is covered by a cylindrical air vessel, screwed down by means of a flanch at the edge, so that it forms the bottom of this space; and in consequence of this arrangement all the water which issues from the body of the ram through the flap valves will flow off on each side, and be received in the basin. As, however, the circular basin is divided into parts by the pipe of the ram which passes through it, there is a passage communicating from one of the enlargements to the other, for which purpose it curves down and descends beneath the pipe of the ram. The ascending pipe that carries away the water which the machine raises proceeds either from this curved passage or some other part of the basin; so that it may receive the water which has passed through from the body of the ram through the flap valves and the air-vessels into the basin at each side of the pipe. The improved ram of Mr. Roe's invention is composed of a square box, say fourteen inches long and three and a half inches square, one end of which is attached to a pipe leading from the head of water at the other end, being a valve called a pulse-valve. On the top, at about the centre of this box, an air-vessel is fixed; between the square box and the air-vessel there is a valve, as well as another in the neck of the air-vessel, for supplying it with fresh air. The ram being ready for action, the water descends, being let down through the pipe, which causes the pulse-valve to close; the sudden close of the latter causes the water to retreat back again for a short space, which again permits the opening of the pulse-valve by the pressure of the atmosphere upon it. The water returning causes it again to close, it again retreats, and this constant motion causes the action of the ram. At each pulsation a small portion of water is admitted into the air-vessel, where the air being compressed by admission of the water, drives the latter up through a small pipe attached to the air-vessel to a height of one hundred, a hundred and fifty, or even three hundred feet, according the fall which can be obtained."

To afford an idea of the power of this improved engine, we may mention that one fixed at Lord Walsingham's, Merton Hall, with a fall of nine feet, projects the water to the top of the mansion, a height of about fifty feet; another at Dumbleton Hall, the seat of E. Holland, Esq., with a fall of twelve feet, raises the water fully a hundred and fifty feet; and a third at the Earl of Macclesfield's, with a fall of six feet, throws it to the top of Sherbourn Castle.

It seems Mr. Roe's principal object in the improvements effected by him, has been to simplify the construction of the machine, so that in the event of an accident it may be easily repaired on the spot by any ordinary workman, without the trouble so justly complained of with the old apparatus, of sending it to town for the most trifling repairs, and this he has fully effected.

BRITISH ORCHIDEÆ.

Although many unsuccessful attempts have been made to cultivate the British Orchideæ, I am sanguine enough to believe that the day is not distant when we shall see them grown to the same perfection as the once thought Invincible exotic species. Why cannot we grow them as we do the Cape Bulbs? It appears to me that what is essential to one must be good for the other; that is, a suitable soil and airy situation. I am acquainted with a gentleman who, some years ago, found a beautiful variety of *Orchis maculata* in the Isle of Wight. He was so delighted with it that he dug it up, brought it home, and planted it in his garden; and from that one plant (a tuber) he has raised by offsets at least fifty. At first he took off one offset in a year, or perhaps two years, and thus kept adding slowly to his stock till last year, when the old plant seemed to be dying, and he thought he would take it up to see what was the cause, when, to his surprise, he found a great number of small offsets. As they are sometimes found growing close to each other, comparatively in lumps, it may be accounted for by a similar circumstance to the above. The same gentleman has grown other species, but not with the same success. I have no doubt that all of them may be grown and improved by cultivation; but what I wish to urge upon your readers most is, to obtain varieties from seed. I have been told by some that they never do seed. With such persons I cannot agree; for nature's universal law says that all are made to bear seed after their kind. Whether they perfect their seed only in very favorable seasons is another question. I feel quite satisfied that they do sometimes seed, from the fluctuations that I have seen in the same localities. I should like to know if it is possible to prove whether the seed is perfect or not by the aid of a powerful microscope. I recollect reading an account from a correspondent in the 'United Gardeners' Journal,' that he had sown what he thought to be perfect seeds several times, but never succeeded in raising one plant. I saved some seed last season, and intend to sow it in the spring, and should I be successful, I will communicate to you the result. I was told the other day by a practical gardener that he was of opinion a British orchis would grow for a number of years on a square inch of ground. I differ from him; for I believe they are a travelling family of plants, there being a new bulb produced every year opposite the old one, and, allowing the bulb to be only three-quarters of an inch in diameter, it would remove six inches from where it originated in eight years.

I have been informed that the Horticultural Society offer medals this year for collections of hardy *orchids* in pots. May their exertions be crowned with some fine specimens brought before them! I think it likely to be the means of making their cultivation more general, and stimulating to those who have already begun. R. KEELER.

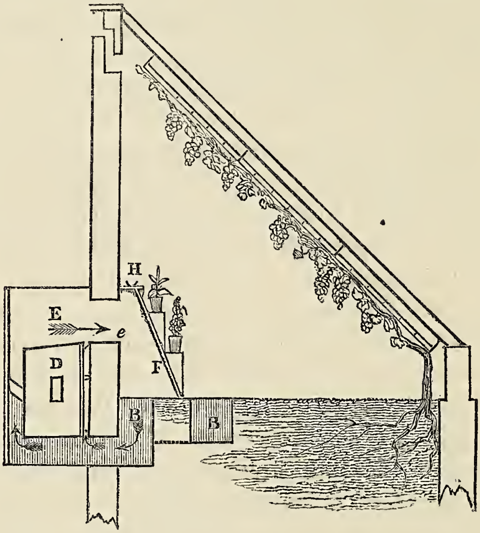
[We find the majority of the species to thrive in pots, if care is taken to imitate the leading constituents of their native soils. We assimilate their treatment to that usual with the division of Cape bulbs which are found in the most temperate regions, and to which our respected correspondent refers. We presume they are potted in the autumn, and preserved through the winter under a thick layer of leaves or old tan; in the spring they are removed to a cold frame, in a sunny situation, and being moderately watered, speedily burst into leaf, and usually bloom finely. A reduction of water and the return to their old quarters mark the autumnal treatment.—ED.]

THE DERBY TULIP CHALLENGE.

THE terms of this friendly trial of skill, originating in a spirit of emulation, have been determined on by the agreement of both parties to show thirty distinct varieties in six classes. The day appointed is Thursday the 28th of May next, and the exhibition to take place at Nottingham. The judges appointed are R. Dixon, Esq. of Manchester; W. Thornelly, Esq. of Heaton Norris, near Stockport, and Mr. W. Hepworth, of Halifax. The growers selected to supply the flowers, and on whom the credit of either county will depend, are, on the part of Derby, Messrs. J. Gibbons, W. Allen, J. Allen, W. Parkinson, J. Parkyn, and J. Eason; those for Nottingham are Messrs. W. Wild, J. F. Wood, J. Mach, W. Harpham, J. Spencer, and J. Thackeray, Esq. The result of the meeting will be looked to with an interest only to be understood by tulip growers.

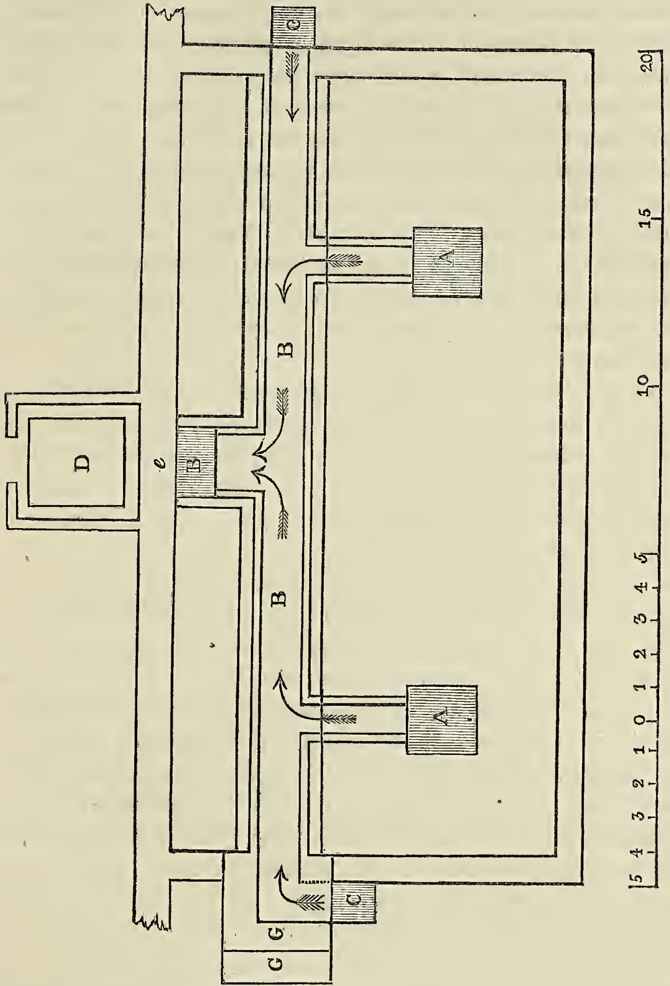
THE POLMAISE SYSTEM OF HEATING.

In the present state of horticulture the minds of all engaged in it appear to be on the search for novelty, without regard to other considerations, no matter whether it be theories of culture, the plants to be cultivated, or the erections in which they are to be placed, the excitement has grown to an extent hitherto unknown, and seems to be absolute and increasing in its demand for some *new* object on which to feed; doubtless among the multitudinous productions which spring up on all sides to meet this demand there must be some of more than passing value, nor am I disposed to quarrel with the cause of this state of things, believing it to arise in an increasing taste for the science, which all connected therewith should encourage by every available means within their respective spheres; still it seems necessary that much more discrimination should be exercised on the subject than appears to be usual, for how often it happens that the veriest clap-trap is announced with all the pomposity of some highly important discovery, and this announcement is all that is ever heard of it, from which it may be naturally inferred, either that the matter was perfectly valueless, or that notoriety was the only aim of the originator; but to descend to plain matter of fact subjects, it is a mystery to me what could ever have induced the promulgation of so much verbiage, and the exceeding waste of words which has of late been expended on the dried and *drying* system of heating employed in the Polmaise vinery. It is strange that after so many years of enduring attention to perfect a mode of imparting heat to horticultural erections, which we were all along led to believe would be at least free from the objections so loudly raised against the circulation of hot air, that it should now be found necessary to recur to that very system. It is strange that the same individuals who then and since have opposed the principle of the method should now be engaged in its laudation; but it is still more strange that persons can be found who, in a breath, will oppose with vehemence the principle as entirely erroneous in all its parts, and again recommend the same thing in a modified shape as the ne plus ultra of heating. I may indeed incur the imputation of an asinine conformation by the avowal, but really it seems to me impossible to discriminate between the principle of the old smoke flues, now justly consigned to the abyss of oblivion, and that of the all-perfect Polmaise system. Oh! but say the advocates of the method, we have discovered a means of sifting all gaseous vapours and noxious properties from the heated air, through a wet blanket, whereas in the old flue it was merely sifted through a four-inch brick wall; this reasoning is, to say the least of it, quite unanswerable. It would render the subject much more easily understood by your readers, and save me a great trouble in explaining it, if you, Mr. Editor, will have a sketch of the apparatus engraved.



REFERENCE TO CUTS.

A Gratings of conducting chambers, by which the cold air within the house is conveyed to the stove.
B Main conducting chamber.
C Valve for admitting fresh air from the exterior.
D The stove.
E Warm air chambers, *e* opening in back wall for the admission of the heated air to the house
F The woollen cloth, extending to within 2ft. of either end of house.
G Steps into the vinery.
H Water gutter, from which water is conveyed by worsted threads to the woollen cloth beneath.



The caloric imparted to the atmosphere of the house is obtained from the radiation of an iron stove, situated at the back of the house, and opposite to which is a hole in the wall for the admission of the heated air, which in its passage is met by and distributed through a woollen cloth, requiring to be kept wet, in order to deprive the air of some portion of its aridifying qualities: now the statement, that this instantaneous contact between the heated carboniferous air and the wet blanket, is sufficient to purify the former of all its injurious particles (its possession of which no one denies), is one which I entirely repudiate; or even if we admit that it has the power of removing some of the poisonous qualities,—would it not be every way preferable to make the caloric filter as it were through a quantity of water, that it may be made quite pure before it is allowed to mingle with the atmosphere of the erection? Yes, it is answered; undoubtedly it would purify it to an extent sufficient for all practical purposes. Then I rejoin, if water is still required, even for the Polmaise system, let us have it in the more simple, effective, and durable form of a tank.

At the very outset of the thing, there is a fatal error in the situation selected for the stove, necessary, however, from the cumbrous nature of the apparatus; it is placed at the back of the erection; thus causing the action to be diametrically opposed to one of the first laws of nature which govern the distribution of radiated heat; the rapid motion of the particles of this body to the highest attainable point the moment they are free, is well known; and in the construction of all other means, having for their end the equalizing of temperature, advantage has been taken of this rule, by causing the calorific air to pass over as much space as possible in its passage to the top of the house. Here, on the contrary, in the original, the moment it is given off the particles mount perpendicularly upward, and of course remain there as long as there is the slightest difference in their density and that of the air at the lower part of the house;, to talk of the equal spread of heat attainable from an apparatus of this nature is absurd, it cannot happen till this great natural law is removed. Then, to remedy some of the most glaring defects, comes all the paraphernalia of conducting chambers (it would not be *new* to call them flues), purifying tanks of water, *flannel tubes,* and a host of other *improvements,* which if adopted would place the proprietor in possession of a most complicated imitation of the old smoke flues, and nothing more.

As a last recommendation, the cheapness of the method in question is urged; but the old axiom of "once well done is twice done" should be thought of; for if in effect this, or any other system, fall short of the required power it would be dear at any price; but I am not disposed to grant it the palm even in this respect, for if the expense alone has to be considered, without reference to other qualifications, it is questionable whether a wooden tank, covered with slabs of slate, could not be fixed at even a less cost, with the advantage of having a certain steady means of heating at command, which cannot be disarranged, and which will work equal to the most expensive, and probably last longer than the furnace of the Polmaise method. It has been said that the grapes produced in the vinery, subject to this mode of heating, were so superior, that the gardeners of Stirling were afraid to compete with them; the shallowness of this boast has been exposed in the statement, that the vines were young but just in a bearing state, and that they could scarcely be said to have been forced at all. Any system which requires the bolstering this has received is, to say the least of it, suspicious.

HORTULANUS.

GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

DEFLEXED. Having a gradual curvature from the base to the apex, bent downwards.

DEFLORATED. Past flowering, descriptive of the floral organs when past their beauty.

DEHISCENCE. The bursting of a seed vessel for the escape of the seed, or the opening of an anther for the distribution of pollen: thus all leguminous plants have dehiscent seed vessels; and in Datura, the dehiscence is at the several angles of the pericarp.

DELIQUESCENT. Descriptive of the ramification of branches when they occur so equally as to remove the centre or main stem, so also in the case of many peduncles, where the middle pedicle is absent.

DELTOID. Having a triangular outline, either at the margin or in the transverse section.

DEMERSUS. Submerged, applied to the leaves and other parts of aquatic plants which are constantly covered with water.

DENDROIDES. Having the general outline of a tree, though of dwarfer character.

DENS. A tooth.

DENTATE. When the margin is cut into many small angles resembling the teeth of a saw.

DENTICULATE. Having small teeth.

DENUDATUS. Bare, without the ordinary covering.

DEPENDENS. Having a trailing or pendent habit.

DEPRESSED. An outline which is wider than it is high, vertically flattened.

DESCENDENS. Synonymous with dependens, passing downwards.

DETECTUS. Naked.

DETERMINATE. Having a positive limit.

DEVIATE, DEVIATUS. Turned out of the ordinary course, upside down, reversed.

DIACHYMA. The interior organism of a leaf, the substance contained between the two surfaces.

DESCRIPTIVE LIST OF NEW PLANTS.

SCROPHULARIACEÆ.—*Didynamia Angiospermia.*

Chænostoma polyanthum. This truly beautiful little plant is a native of South Africa, about Algoa Bay, and the Zwartkops River, in Uitenhage, where it was found by Ecklon. In habit it is dwarf and bushy, its leaves are small, of an ovate form, and its flowers, produced very profusely in large racemes, are of a blueish lilac colour. It is in short a very desirable species, and capable of being made eminently useful. Treated as an annual it may be had in flower the greater part of the year. This property considered in connexion with the colour of its flowers, either employed to decorate the border in the open air or ornament the greenhouse, will recommend it without further comment.

In cultivation nothing is much more easily managed ; seeds are produced very abundantly, and cuttings strike with great readiness ; it will grow well in any good garden soil. When being treated as an annual, with a view to keep up a succession of flowers, the time when these are wished to be had must regulate the period at which the seeds are sown.—*Pax. Mag. Bot.*

Pterostigma grandiflorum. This is one of the new introductions by the Horticultural Society. It was received from Mr. Fortune, who described it as a blue flowered herbaceous plant, growing on hill sides and near streams in the island of Hong-Kong; it is new to our gardens. In its wild state this plant does not appear to grow more than a foot or eighteen inches high, but in gardens it has become more than three feet high; the consequence of which is that its natural beauty has been greatly impaired. It is a perennial, covered all over with slender spreading hairs. The stems are round, the leaves are opposite, ovate, crenated, very much marked with sunken veins, and deep green. The flowers, which are nearly as large as those of a digitalis, and of the deep colour of Gloxinia violacea, grow singly in the axils of the leaves, than which they are considerably shorter. Their calyx appears to consist of seven narrow green leaves, imbricated at their base, but the number varies to eight. They form a complete broken whorl, and may be understood to consist in part of bracts, which stand close to the true sepals and become blended with them; of these, the three exterior are both broader and longer than the others. The corolla is tubular, two lipped, with the upper lip broad, ovate, blunt, and notched, while the lower is composed of three smaller divisions placed nearly on the same plane; in this respect the flowers vary: some of the specimens having four lobes in the lower lip. The usual number of stamens is four, of which two are perfect and next the upper lip, and two stunted, of the same length but more slender, and belonging to the lower lip; when an additional lobe appears in the lower lip of the corolla it is accompanied by an additional sterile stamen. The perfect anthers are constructed in an unusual manner; at the end of the filament is a large globular green gland, which eventually shrinks up; upon this green gland are planted two lobes of unequal length, bursting longitudinally. The style and stigma too are of a singular form; the former gradually widening and flattening upwards till it ends in a thin broad plate, which curves forward and forms a stigma on its anterior edge.—*Bot. Reg.* 16-46.

GESNERIACEÆ—*Didynamia Angiospermia.*

Alloplectus dichrous. This singular stove plant was introduced from Brazil by T. G. Lorraine, Esq., and has been distributed under the name of *Hypocyrtà discolor* of Lindley. We have frequently had occasion to remark how very ill defined are the genera of Gesneriaceous plants, still we think this can hardly be referred to Hypocyrta of Martius, but rather to Alloplectus of the same author, destined to receive the well known *Beslerea coccinea,* (Lin.) and the allied species, which have the margins of some of the vessels variously complicate or plicate. It seems with equal certainty to be the *A. dichrous* of De Candolle ; *Besleria bicolor* (Schott) ; Schott's original character entirely accords with it, and he says nothing about the colour of the corolla, which De Candolle (who appears to have seen the species), perhaps by some error, states to be red in the tube whereas it is yellow ; Martius's figure and description of *A. sparsiflorus* leaves no doubt of that being synonymous and not happily named, for he correctly represents the flowers as aggregated.

Cultivated as this plant is at Kew among the various red and orange-coloured and purple-flowered Gesneriaceous plants, it makes a singular contrast with its dark black purple, or blood-coloured calyx and pale yellow very woolly corollas ; it may be increased by cuttings.—*Bot. Mag.,* Tab. 4216.

Gesneria Hondensis. A very handsome Gesneria, discovered by Humboldt at Honda, New Grenada. Tubers were sent to the Royal Gardens of Kew by Mr. Purdie, early in 1845 ; it has flowered at Syon Gardens in December of the same year ; the rich scarlet of the flowers, yellow at the mouth, remind one of the well known Manettia bicolor, but here the red is due to the shaggy hair, altogether of that colour, with which the tube of the corolla is clothed for almost its whole length. It requires the same kind of treatment as other species of this fine genus, and it appears that by a little management in forcing or retarding the tubers they may be made to blossom at almost every season of the year.—*Bot. Mag.* 4217.

MALVACEÆ.—*Monadelphia Polyandria.*

Fugosia heterophylla. A very pretty shrub, named by Cavanilles in honour of Bernard Cienfuegos, a Spanish botanist of the sixteenth century, and now, we believe, first cultivated in England from seeds sent from St. Martha by our collector, Mr. Purdie, in 1845 ; the general appearance of the blossoms is not much unlike those of *Turnera ulmifolia,* but when the centre of the flower is examined, each of the five petals will be found to have a rich scarlet or blood-coloured pectinated spot, the teeth or rays arranged with the most perfect regularity. Mr. Spach has, we think, correctly referred the *Redoutea* of Ventenast to *Fugosia*, for there seems to be no generic distinction; the present species was originally found in the Island of St. Thomas and on the banks of the Orinoco. Its specific name is derived from the varying form of the leaves.—*Bot. Mag.* 4218.

APOCYNACEÆ.—*Pentandria Monogynia.*

Kopsia fruticosa. From Pegu, says Dr. Roxburg, this elegant shrub has been introduced into the Botanic Garden of Calcutta, where it is in constant blossom. The flowers are like those of Vinca rosea, but larger and faintly fragrant. It is, in fact, one of the most ornamental shrubs in the garden. This is not saying too much, for certainly in cultivation this plant is a great ornament to our stoves, and though not in constant flower it blooms several times in the year, and at very uncertain seasons, and continues some time in beauty. Messrs. Whitley and Brame appear to have first imported it into Europe.—*Bot Mag.* 4220.

ACANTHACEÆ.—*Didynamia Angiospermia.*

Lankesteria parviflora. Lankesteria is a genus of Acanthads, allied to Eranthemum, from which it differs in the absence of sterile stamens, and in the capsule containing but two seeds. Two species are known, the present a native of the west coast of Africa, whence it was brought by Mr. Whitfield; and another, with more shaggy branches, sharper pointed leaves, and larger flowers, whose tube is three times as long as the calyx.

Mr. Glendinning writes, the present subject does not perhaps equal in beauty some of the plants from Western Africa already published, but nevertheless it is a pretty and useful winter flowering species, with bright yellow flowers, contrasting well with that valuable old plant Eranthemum pulchellum with blue flowers. On this account it is more especially desirable, because in the beginning of winter, at which period it flowered in my stove, we have really little to adorn such places. Its cultivation is rather peculiar; I have found it succeed best when treated in the following manner: shift it in March, but not into too large a pot, using sandy peat with a small portion of loam, place it in a moist temperature in bottom heat, so as it may grow away freely, 75° will be sufficient for it; towards summer it should be hardened by degrees to endure the temperature of the greenhouse, and in autumn it should be placed in rather a cool stove, where it will continue flowering for some months. The plant is as yet scarce in this country, it is not, however, difficult to propagate, as it will strike readily by cuttings in heat under a hand-glass.—*Bot. Reg.* 12-46.

ASTERACEÆ, or COMPOSITEÆ.—*Syngesia Polygamia.*

Mulgedium macrorhizon. This, although its flowers are but those of Succory, is nevertheless a charming perennial, with numerous trailing stems, two feet long, and scarcely rising more than a few inches high. For decorating rock-works it is unsurpassable among autumnal perennials. It grows willingly in a soil composed of sand peat and loam, and is hardy enough to stand the winter in the open border, but its large fleshy roots render it impatient of moisture and it is frequently destroyed in winter by damp. It should not only be planted in a very dry situation, but protected either by a hand-glass or dry leaves. It is easily increased by seed sown in pots and placed in a cold frame. It flowers in September and October, and remains for a long time in perfection; trailing over stones or rocks and covering them with a carpet of lively blue. It was raised in the garden of the Horticultural Society from seeds received from Dr. Royle, and stated to have been collected in Cashmere or Thibet.—*Bot. Reg.* 17-46.

ARCHIDACEÆ.—*Gynandria Monandria.*

Dendrobium aduncum. Of this very pretty orchid we know nothing more than that it was sent from Calcutta to Messrs. Loddiges by Dr. Wallich, and that it flowered at Hackney in July, 1843. In some respects it is allied to *D. Pierardi,* especially in its small pink flowers and manner of growth; but it is more closely related to *D. moschatum,* of which it may be regarded as a feeble imitation. It is, however, widely different from both, and especially known by its half transparent flowers of the most delicate texture and clearest tints. Why it is called D. aduncum, or whence it comes, we know not.—*Bot. Reg.* 15-46.

Catasetum callosum, var. *grandiflorum*. This singular plant, of which the flowers may, I think, be likened to the body and legs of a great spider, is from the rich collection in Syon Gardens, and was received by his Grace the Duke of Northumberland from Columbia. Notwithstanding the large size of the blossoms, and the slightly dissimilar form and different colour of the lip, I fear it can only be considered a variety of C. callosum of Dr. Lindley; and I am the more confirmed in this opinion from afterwards receiving from Syon a smaller state of the same plant, exactly, as it were, intermediate between the two. Its long pendent spikes, of dingy purple flowers, of which the floral coverings are singularly divaricated, the three upper pieces being applied to the back of the column, the two lower to the under side of the lip, are produced in December.—*Bot. Mag.* 4219,

CALENDAR FOR APRIL.

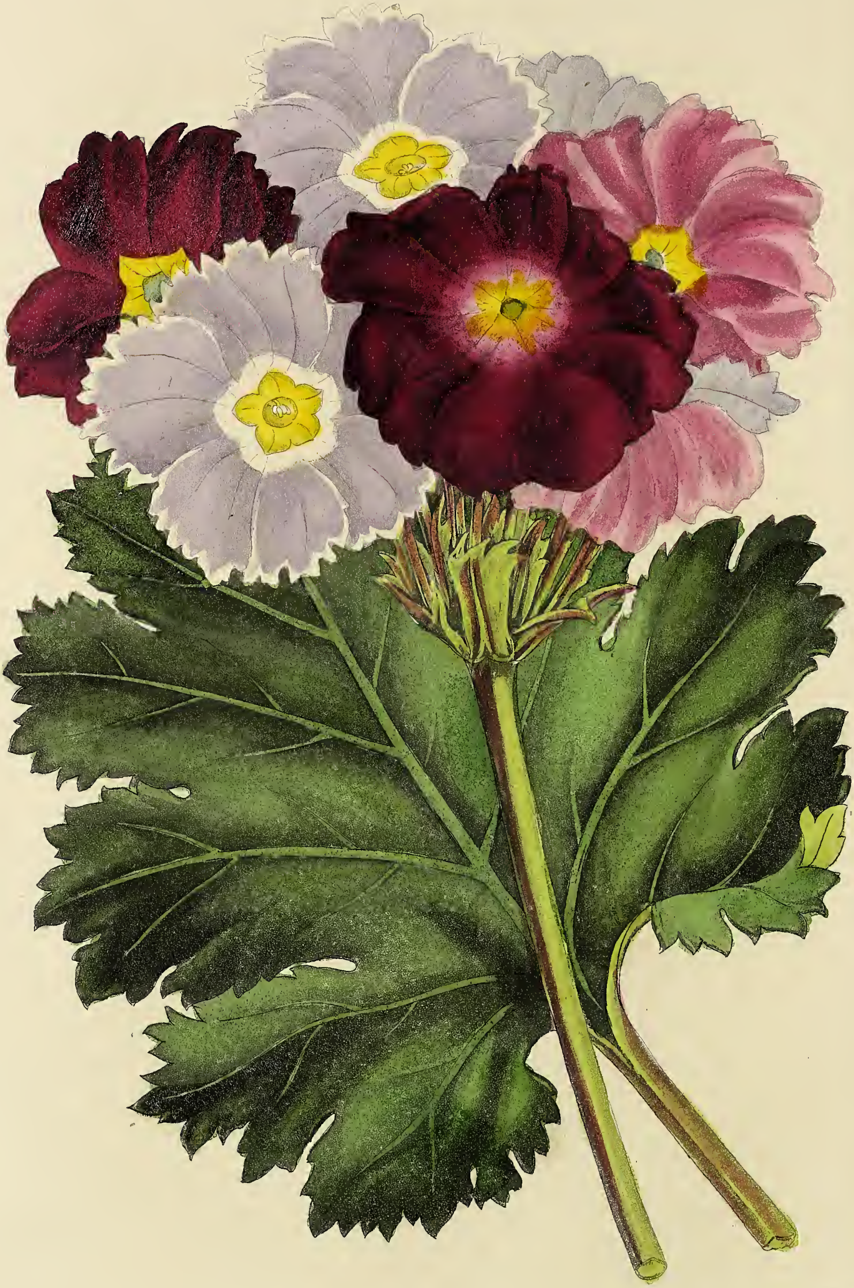
The multiplicity of enemies with which the gardener has to contend, through all seasons, renders it necessary that he should be surrounded with as many means of keeping them in check as possible. One of his best aids is undoubtedly a good cat; and as these animals may be trained to almost any desired habit, they will thin intruding vermin, at the same time that any pets, even among birds, will be safe in their company. As an instance of this, an excellent cat for killing rats, &c., is yet on such good terms with a starling as to romp about with it, and allow it to take very strange liberties by poking its beak into the cat's ears, eyes, and mouth, when asleep, whilst tom also shares its milk with the bird. A dog hardly seems in place in a garden, although a useful help on occasion, especially among the larger vermin which sometimes intrude into the garden. Hedgehogs are also of considerable service, especially in houses or other structures infested with cockroaches, beetles, &c.—such insects forming a considerable portion of their food. They have also been recommended for destroying the plantain or common ribgrass in walks, which they do by eating the fleshy part of the root just below the leaves. Snakes, again, are quite harmless, and destroy considerable quantities of frogs, mice, and similar small fry, which are either directly injurious or unsightly in a garden. The value of toads in houses, pits, and other plant structures infested with woodlice, are also well known. In addition to these living helps, the old figure of four trap, and also a brick or pantile, supported by a thread between two sticks and baited with a pea or bean, will take many mice, especially the large field mice, which many cats will not kill. Pots, with a little hay or moss in them, bean-stalks, bamboos, and many other contrivances, may also be resorted to towards autumn for entrapping earwigs; and they should be very plentifully distributed, as it must be borne in mind that the power of flight in these insects is very great, and, therefore, that no part of a plant is beyond their range.

In the flower garden every exertion should be made to fill the beds with hardy annuals, and other early flowering plants from the reserve ground, as fast as the bulbs and other earliest flowering things begin to fade or look untidy. The stock of plants for the common display should also receive proper attention in watering and shifting into larger pots when necessary. Examine advancing roses, and carefully pick out all caterpillars or grubs from the points of the young shoots, or few flowers will be obtained. Roll, sweep, attend to edgings, &c., keeping everything in the neatest possible trim.

Carefully attend to the greenhouse plants as they advance in growth, removing some of the least valuable ones to any temporary shelter, in order to give the others proper room. Shift as requisite, supplying the plants more freely with water and air as the season advances.

Similar directions apply to the stove and other plant structures, where every means should be used to encourage a rapid development of the plants, especially the hard-wooded ones, in order that they may be at rest if possible early in autumn, so as to be well ripened off to meet the winter, and also to throw them into a more likely state to flower freely. This point should also be attended to with orchidaceous plants, whether the object is to increase the bulk by obtaining a second growth during the season, or to flower them strongly, which they are more likely to do if they are subjected to a period of perfect rest, which they all enjoy more or less, in their native places of growth.

D. M.



Alfred Adlard Sc.

PRIMULA SINENSIS, VAR'S.

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PRIMULA SINENSIS.

WITH AN ILLUSTRATION.

Every one is acquainted with the valuable character of the Chinese Primrose, as an ornament to the greenhouse in autumn, winter, and spring, and to the flower garden in summer. Its easy management, and long continued habit of blooming, have made it a universal favorite, and stamped it with an importance that has at length aroused the attention of the florist, directing his untiring care towards its improvement.

The varieties of which our plate is an illustration may be regarded as an example of the result of this skill, at an early period of its appliance. A great deal is there done to increase the interest of the species, by the addition of size and a tone of colouring more powerful and distinct from existing strains, but much remains to be effected ere the flowers can become all we think them capable of attaining. The point of most consequence, and perhaps the most difficult to insure in the progressive change of the flowers, is the increase of substance, to have the coloured portions thick and substantial, so that they may extend themselves in a firm even manner, must be desirable, as it would impart a greater degree of richness to their general appearance, and enable them individually to endure in beauty for a longer period. Bright and decided shades of colour will, of course, be valued under any circumstances, but in an eminent degree when combined with the bold outlines and fleshy texture adverted to. The size of the blossoms we consider to be quite an *ad libitum* matter; the larger ones are, of course, more showy, and will therefore secure for themselves a place more or less exalted in proportion as they are perfect in other respects. The manner in which these improvements are to be attained is, as in the case of all other floral variations, by the production of seminal offsprings combined with high culture. And here the very general complaint of the paucity of seed from the best varieties operates. It is by no means an unfrequent occurrence for hundreds of plants to bloom all through the year without producing a grain of perfect seed, and it is next to impossible to buy that of really good flowers; it becomes, then, necessary to treat a few individuals in a manner expressly adapted to cause them to fructify, for their management as merely ornamental objects is not suited to this purpose. The primary consideration connected therewith is to prevent the plants exhausting their strength in the development of flowers through the winter. As an assistance to this, it is better to sow in July than at an earlier period, and by removing the flower stems as they appear, strong plants will result for the summer's blooming. A situation fully exposed to the influence of the sun is essential when in flower, that the pollen may be properly matured; which is indeed the great and almost only requisite to the plentiful production of the seed. With the ordinary management in other respects, and attention to this, there can be little doubt of its being duly matured as freely as in other plants of the class. A shelf in the greenhouse, near to the glass, and in a position that air can be admitted to the plants, is perhaps the best and most promising that can be suggested, unless indeed a small frame can be devoted to them, where they will be under more immediate control.

The generic title of the family of primroses is derived from "primus," first, in allusion to their flowering at an early part of the year. The common primrose, the oxlip, cowslip, and polyanthus are all included in it; indeed the genus contains about fifty true species, besides a great number of varieties, in addition to those included in the florists' catalogues. The present species is a native of China, whence it was originally introduced in 1820, by John Reeves, Esq., a corresponding member of the Horticultural Society, then residing at Canton. It is the *P. prœnitens* of the Botanic Register; but as the specific term *sinensis* was first employed, and to which no objection worth notice can be offered, it has continued to be more generally used. Mr. T. Wild, of Ipswich, the fortunate possessor of the varieties figured, raised them, we believe, in the course of last season; the crimson one is called Suffolk Beauty, and is perhaps the richest coloured variety we possess; the other, Village Maid, though of more subdued shades, is superior in form, and its pretty pale edging renders it particularly desirable.

EDITOR.

ADVICE TO PURCHASERS OF NEW PLANTS.

The position of the amateur horticulturist, the true lover of plants, who, anxious to possess the best of new things as they are seasonally produced, without encumbering his conveniences with aught but the best is indeed embarassing, as he reads the many advertisements of recent productions, all described in positive terms of unequalled beauty, and so superior to all coexisting varieties that, after indulging in one lingering doubt, he purchases, and in very many cases is disappointed by shortly after meeting ith some other which *is* "decidedly superior." The remedy for this crying evil evidently rests with the public journalist; and it is perhaps a matter of reproach that the subject has been hitherto so entirely neglected. It is one so full of difficulty, and extends over such delicate ground, that all have hesitated to approach it, contenting themselves with the offer to give opinions on such as may be referred by their several owners—a course which may be certainly said to evince some idea of the consequence of the subject and a desire to render service, but which in itself must fall short of the required positive advice, that the purchaser feels is necessary to afford him any real assistance in his selection. We are aware of some of the most forcible objections to be raised against the publication of any decided preference among contending antagonist varieties—such as the undoubted right of every party to effect the best sales they can for their several goods, and the plausability of allowing each to "find its own level;" but we do not forget that while this is going on the sinews of trade are being strained, skill and capital misdirected, and a disgust engendered among those who otherwise would be energetic supporters of the science; which must inevitably recoil upon the original promoters of a system false in itself, and conducive only to error and disappointment. We are also cognizant of the importance of the position we are about to assume, of its duties, and of the insidious attacks to which it may render us liable. Yet we hope, by an undeviating course of strictly honest and uncompromising probity, to effect the object in view, so much to the advantage both of those who buy and those who are anxious to satisfy the purchaser. The greatest difficulty we apprehend, and one which entails much regret, is, lest any thoroughly deserving variety should pass unnoticed through the inadvertence of its owner, in refraining from publishing its whereabouts. No trouble of our own, however, shall militate in this respect, and we confidently hope for the cooperation of parties concerned. Our remarks will in future be continued in a seasonal manner, though, from the present advanced state of the buying season, we can do little more than enumerate those we intend adding to our own stock in the several classes referred to.

VERBENAS will this month be required for bedding and other purposes; and, from the multiplicity of those offered, much care is necessary to select distinct and really desirable kinds. Of those we know to be coming out, the following are decidedly good:

Ivery's Wonder of Scarlets. Brilliant scarlet, fine globular trusser, medium habit, and large round flowers.

Smith's Emperor. Crimson, with a clear white centre; the flowers large and well formed, and of good substance.

Smith's Duc de Nemours. Bright rose colour, with yellow centre.

Smith's Merry Monarch. Scarlet; the margin of the flowers being several shades lighter forms a distinct edge.

Smith's Duchess of Sutherland. A first-class flower, with large, well-formed florets and truss; the colour a pleasing bright blush, with a glossy rose-coloured centre.

Smith's Modesta. A cream-coloured flower, spotted over with rose. Novel and pleasing.

Miller's Comet. Clear flesh-colour, with pink centre; the outline both of the florets and of the whole head is very good.

Miller's Samye. A beautiful and distinct flower; rich pink, finely shown up by the dark, purplish crimson of the centre, good form and fine trusser.

This half dozen may be advantageously added even to the best.

DAHLIAS must be had this month, in order to get them into their places before the scorching influence of the summer is felt. The following should be grown by all who desire to maintain a perfect collection:—Keynes, Sir Edmund Antrobus, Edward's Queen Mary, Gaines's Princess Radziwill, and Backhouse's Ebor.

FUCHSIAS. The number of these produced every year utterly confounds the purchaser, who cannot hope to discriminate between the claims of the multitude offered. A course at once novel and just has been adopted this season by some of the growers, who, feeling confident of the merit of their flowers, have challenged all others to compete with them individually. It certainly is the most forcible mode of recommending, when the raiser stakes both his money and professional credit on his productions; and we are bound to believe, under such circumstances, that his intentions are *bona fide* for the benefit of the purchaser. However, we abstain from further remarks on the flowers themselves, as to express a preference in this stage of the proceedings would be to prejudge them. Their names will be found in the list we give, and any of them may be added with advantage to the best collection.

Light flowers. Hally's Empress, Dickson's Acantha, Epps's Countess Cornwallis, Lane's Mrs. Lane, Miller's Miss Prettyman, Jennings's Giantess and Napoleon—a variety of French origin, but which may be had, we suppose, of any nurseryman.

Dark varieties. Fowle's Colossus, Miller's Great Britain, and a new species imported by Messrs. Veitch and Sons, of Exeter; the latter is of novel character, with flowers resembling those of *F. corymbiflora*, most profusely produced, but without petals. It is not yet named, but we presume will be sold this season.

CHŒNOSTOMA POLYANTHA.

In accordance with your request I forward an account of my mode of management hitherto pursued with this lovely little plant, premising that nothing I have before grown ever gave me so much pleasure, and predicting a very extensive adoption of the species both for in-doors decoration and for bedding purposes. The first lot of seed is sown in March, and successions in April and May for the summer supply. These are all placed in a gentle heat, to cause them to vegetate quick and freely; they are continued here until fit to pot, when they are placed three or four in a moderate-sized pot filled with leaf-mould and loam; a lower temperature, such as that of a common frame, kept close for a few days, is best for them at this time, and by degrees air is admitted until they will bear a full exposure to the atmosphere. In this manner they are grown until fit for the purpose originally intended. If desired for the greenhouse they are again potted, so as to have them strong; otherwise they remain until wanted in the flower garden, where most of them are generally moved by the end of May, to fill the beds in which early bulbs have been grown, and where they soon become a mass of flowers. They require very little attention, either as respects soil or watering, and are always neat in appearance, from their naturally dwarf character. Imagine a small bed containing scarcely three square feet, filled with this plant, not exceeding eight or ten inches in height, and in which were placed a dozen individuals, the flowers produced at one time on these were so numerous as to entirely preclude the possibility of counting them. Their colour, too, is of that pleasing subdued tint (a delicate rosy lilac) as to be agreeable to every one.

In the autumn I intend to try a number of plants, both preserved from the summer's stock and others obtained from seed, for winter flowering, and have no doubt, from my past experience with it, to succeed in keeping a display of its flowers throughout the entire year. The only difficulty likely to occur will originate in the dense habit of the plant, rendering it liable to attacks from mildew; but this I think may be remedied by keeping the plants in an airy situation, and being careful in regulating the supply of water.

A single plant raised in January, and kept in the greenhouse, has now fully expanded 142 flowers; and of course, as it grows larger, will have a much greater number unfolded upon it. A more truly useful and chastely beautiful plant, capable of being made conducive to the decoration of our houses and gardens, to the same extent, was perhaps never before introduced. Every flower gardener, and those who wish to make the most of a little space, should possess a stock of *Chœnostoma polyantha.*

J. ALDRED.

THE POTATO DISEASE.

IN the entire history of gardening never previously arose a question of so much importance in all its bearings, or attended with such anxious solicitude, as the one before us,—its importance arising out of the fact that the staple food of so large a proportion of our fellow men in this and the sister kingdoms being threatened with what appears to be little less than their entire destruction. Much has been said and written on the subject since its first appearance in June, 1845, and various have been the opinions expressed as to the cause, and the conjectures for staying or removing the injury. Still, from the evidence offered by the current season's growth, we are not much in advance of the position occupied at the end of last summer, when intelligence was pouring in from all sides of the partial or total failure of the crop on lands of every description, and in situations of every possible variety. Crude ideas have been expressed and remedies bruited, neither of which have borne the test of experience. Yet we must not blame their promulgation; for with a subject of such vital consequence, and on which no former knowledge could be brought to bear, every relative thought possessed a value, and exertions, however misguided or futile, required to be estimated, if not by their results, at least by the desire that induced them.

It is still a matter of divided opinion whether the disease is the inherent consequence of a debilitated constitution in the potato, arising from the high and artificial culture to which it has been subject for a series of years, or whether its origin is founded on purely atmospheric influences. Many arguments have been adduced in support of either position—most of them, however, grounded on conjectural surmises, or resting on bare analogy; and it is indeed to be regretted that we have not more decisive evidence on this point, for on it must be based the commencement of remedial measures to have the remotest possibility of success. The *presence* of the disease is conceded by all to be evinced by the growth of a microscopic fungus, called *Botrytis infestans*, or *Artotrogus hydnosporus*, never particularly observed till this occasion; and as the conditions necessary to the development of this minute parasite tend to throw some light on the primary cause of the disease itself, it will be interesting to mention what is known of it.

At a recent meeting of the Botanic Society of Edinburgh, a paper on this subject was read by Mr. J. Goodsir, Demonstrator of Anatomy in the University of Edinburgh, in which Mr. Goodsir stated, in reference to the nature of the disease, "there could be no doubt as to its general resemblance to an epidemic. Although we have not discovered the causes of epidemic diseases, we know they depend partly on local or individual circumstances, which may be obviated, and which influence some epidemics more than others, and partly to general influences, commonly supposed to be atmospheric, but regarding which we actually know nothing but their existence. There is a striking general resemblance between the rise and progress of epidemics and the appearance, non-appearance, and increase of fungi from season to season. Coupling this analogy with the opinion generally gaining ground, that certain epidemics owe their existence to the growth of fungi, or analogous beings in the animals afflicted, Mr. Goodsir conceived that we are bound, in our attempts to explain the nature of the potato disease, not to overlook the fungi which exist in the diseased tubers."

After some further remarks on the structure of this and other fungoid substances, Dr. Maclagan remarked, "that the question as to the nature of the disease in the potato was not settled by proving the presence of a fungus in the altered portions. It was still a disputable point whether the fungus was antecedent to or consequent upon the morbid state of the tubers; it was yet doubtful whether the discrimination of the first advances towards the disease fell within the province of the chemist or the botanist. He had frequently observed, on making sections of affected potatoes, portions in the interior of the tubers, in which no discoloration had commenced, but which were in a soft, pulpy condition. A portion of this could at once be lifted out on the point of the knife, and on being subjected to microscopic examination no fungus or brown granular matter could be observed; but th amyliferous cells of the tuber, and those containing starch grains, were found in a swollen state, as if they had been filled with fluid by endosmose, and the component parts of the cellular tissue had thus become so entirely detached from each other, as to have assumed a complete round form, instead of their characteristic hexagonal shape. It appeared to him to resemble what might be expected from the maceration of the textures in water, and it was a possible supposition that this might be the first stage of the disease, and that the change thus effected in the tuber formed a nidus for the development and growth of the fungus already existing in the aerial part of the plants. Mr. Milne said nothing could be more distinct than the description given of the nature of the fungus which appeared to accompany the disease, and the parts of the potato affected by it. The discussion, however, had been confined entirely to a description of the fungus, and to speculations on its probable effect in altering the condition of the potato. No one had as yet offered any opinion as to the circumstances which led to the production of the fungus. If it arose from seeds dormant in the potato, what was it which had caused them to germinate? If it arose from seed or matter in the atmosphere, was there anything in the state of the atmosphere to account for it in one part of the globe and not in another? He had been devoting attention to the meteorological branch of the inquiry, and he thought he had made a discovery which would explain the appearance of the disease in some places and not in others, but he was not then prepared to enter into the particulars; he would, therefore, indicate generally the results. Mr. Milne then described some peculiarities of the weather in England and Scotland during the summer and autumn of last year, as shown by meteorological returns which he had obtained from a number of places, both in those districts where the disease prevailed and in those from which it had been absent. He mentioned that the maximum summer heat had occurred in England and the southern parts of Scotland in June; whereas in the northern parts of Scotland, where the potato disease had not appeared, the maximum heat had occurred in August, as usual. He alluded also to sudden thermometric changes which had occurred in the south of England, as probable agencies in the development of fungoid bodies."

In a paper by H. O. Stephens, Esq., which we extract from the 'Phytologist,' is the following very important opinion, borne out to a great degree by subsequent considerations: "In a former paper I expressed an opinion that the fungi found in the diseased tubers were to be considered rather as an accidental accompaniment than the proximate cause of the disease, and that I considered it improbable that the *Artotrogus* could be the cause of their decomposition, because that fungus was not invariably present; and that up to the period at which that communication was written I had not succeeded in detecting it. Subsequent observations have convinced me that this inference was correct. The identical sample of potatoes which were then free from cryptogamic organisms now certainly contain them. I now find the

Artotrogus hydnosporus, or at least a mucorine fungus according with the description of Montagne, excepting that in my specimens the spores appear tuberculated or granulated, and not bristly; but this may possibly depend on age. It inhabits the cavities of the cells, perfecting its spores within them, and I think its creeping filaments perforate the cell-walls. It is proper to mention that the same microscopic power has been used in all these observations. In last August these potatoes, then clearly diseased, contained no fungus; now, being further advanced in decay, they contain it in tolerable abundance. I believe I am therefore justified in expressing my confirmed opinion that the potato murrain, at least as far as the destruction of the tubers is concerned, is not produced through the agency of the cryptogamic parasites."

All this seems to infer that it is to atmospheric influences the origin of the disease should be ascribed, the presence of fungi being no more than the outward symptoms. Last summer and autumn the weather was particularly favorable to the development of these bodies; mushrooms were remarkably abundant, puff balls and the large *Bovista gigantea* were springing up on all sides, old trees wore a complete mantle of the Polypori, and smaller species were discoverable wherever a piece of ground or refuse matter was allowed to remain, even for a short time—all indicating the almost universal presence of the germs of fungoid bodies, and the peculiar fitness of the atmosphere for their growth wherever they could effect a lodgment; and by accounts received from various countries this state of aerial influence seems to have been common in all, or nearly all, the temperate regions of the earth. It is not wonderful, then, when we consider that the majority of fungi require the presence of some decomposing substance for their development, and that, like certain classes of insects, they are only seen on the particular substance suited to each; that in a season like the past this potato fungus should have been found on the stems and in the tubers *after* that they, through the influence of that ungenial weather, had become unhealthy. The plain deductions from these inferences are, that the excessive moisture and consequent absence of solar heat, had caused a superabundant accumulation of crude aqueous matter in the organism of the potato which was carried to an extent sufficient to disarrange the entire system of the plant, and thus render it prone to the subsequent attacks of the fungus; that the disease is of this nature is demonstrated by its almost simultaneous appearance under the various circumstances we have already spoken of; and the consideration now arises, how are we to meet the results?

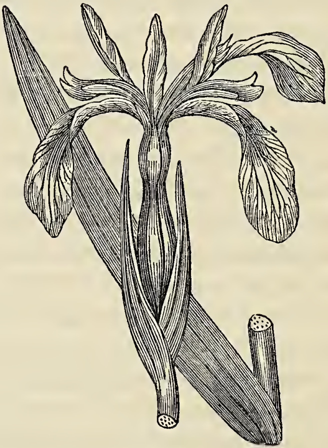
Though we do not agree with the opinion that any predisposing debility existed in the potato previous to the outbreak of the disease, it would be an unreasonable expectation, without foundation of any kind, to imagine that it will disappear as suddenly as it came upon us. No; a shock sufficient to effect the vitality of so large a proportion may require years to effectually remove, and will undoubtedly require an extraordinary amount of scrupulous attention to completely eradicate. Nothing short of this will render the least permanent service; and as the planting season is at hand, it must begin at once. The first and perhaps most important consideration is to have the land in good tilth. There must be no neglect here—no bare scarifying of the surface, but a thorough breaking up of the whole depth of soil; and the best drained land will have the best chance of yielding a healthy return. It will be far better to defer the planting while this is done, than risk the consequences of placing the tubers in ground prepared, as is too frequently the case, by a mere scratching of the upper stratum.

Equal in consequence is the direction to plant wide; for should it happen that we have another wet summer, there cannot be a doubt of plants so situated having a decided advantage over those crowded in the ordinary manner. It is surely worth some sacrifice to regain a healthy condition in the crop; and we do not think this matter has been insisted on to the extent its consequence deserves. Every one at all acquainted with the principles of vegetable physiology is aware of the debilitating effects of an impure atmosphere, or a crowded state among plants of any description; the accumulations are not elaborated, and a plethoric habit consequently engendered, which tends to disease and death, and that, too, by a very rapid transition. And if, then, healthy subjects are thus liable to injury, what must be expected from those which are known to possess an already tainted constitution, when subject to such a course of treatment?

In the preparation of the sets we need scarcely say that all apparently sound ones should be selected and planted by themselves, lest contagion spread among them. It has been advised, and we think it deserving of attention, to dust the sets with quick lime or soot, either are gentle stimulants, and possess antiseptic properties—are easily applied, and cannot possibly do an injury, even if no benefit is derived from their use. With respect to manures, we would recommend a very sparing application, if any, believing a thorough pulverizing of the soil will be more conducive to general health, even without manure. In fact, from the present condition of the crop, it would seem advisable to abstain from the use of strong stimulants for more than one or two years, making up the difference by what we have before urged, draining, deep trenching, and planting wide.

Editor.

ENGLISH BOTANY.



Iris.

To attain a knowledge of the indigenous plants of our country is a study which, once mastered, is so full of pleasurable interest, so easily accessible, and withal so purely intellectual, to say nothing of its usefulness, that we have determined on devoting a portion of our space to the subject as often as circumstances will permit, with the view to render familiar and plain that which at first sight appears abstruse, or at best but a barren and difficult nomenclature. In this endeavour we have no intention to enlarge on the purely botanical question of arrangement, but rather as a primary step to direct attention to the plants themselves. Nor are our remarks likely to be regular or confined to any particular system, but impulsive and varied as the seasons which regulate the progression of the plants they may apply to. We believe it to be necessary, first, to excite a love of the subject, and a desire to learn more of it, ere any science can be approached with benefit; and therefore the objects of our future papers are more likely to be remarkable for, and selected on account of, their floral decorations, than for any other consideration. Detached lessons have their peculiar advantages; for if they do not place everything it is desirable to know in one view, they lead the beginner by almost imperceptible gradations over his worst difficulties, depriving them of the appalling aspect so vividly present when exhibited together. By these gradations we hope to induce a love of our native flowers, which shall extend to an intimate acquaintance not only of their names, but of their natural habits or uses, and most particularly to their ultimate adoption for improvement and elevation to a condition which shall suit them to the ornamental purposes of the flower garden. That much may be effected in this way is the expressed opinion of nearly all conversant with the subject, and is demonstrated by the results which have attended the hitherto confined attempts. To point out those individuals which, from some peculiarities of character, seem to promise most in this way, or are of sufficient interest in their present state, to be admitted to the catalogue of cultivated plants, will be our chief object; and for this purpose we shall select from the best authorities such information as may appear most conducive to the desired result, adding from our own store whenever requisite, and with the valuable aid of corresponding friends hope to accomplish our end.

Dr. Deakins 'Florigraphia Britannica' offers to the student in systematic botany all he will require to that part of the study of our native flora; and as the following remarks tend to elucidate the spirit of this paper, we at once extract them:

"The humble grass-like foliage, the white, gold, or purple flowers, together with the extreme hardiness of the bulbs, has rendered the Crocus an object of peculiar interest to lovers of flowers, since, and probably long before, the time of Edward the Third. This beautiful flower would appear to have attracted especial notice when floriculture was yet in its infancy; and more than two hundred years ago Parkinson enumerated no less than than thirty-one kinds as having 'been carefully sought out and preserved by divers to furnish a garden of denty curiosity.' The fact that so great a number of kinds were cultivated at so remote a period greatly strengthens the probability that the Crocus is not an aboriginal native of Great Britain; and the same author remarks, 'the several places of these saffron flowers have been found out, some in one country, and some in another; as the small purple and white, and striped white in Spain; the yellow in Mesia, about Belgrade; the great purple in Italy; and now by such friends' helps as have sent them, they prosper as well in our gardens as in their natural places. Yet I must give you this to understand, that some of those formerly expressed have been raised up unto us by the sowing of their seeds.' From which it would appear that by seminal offspring varieties were then raised. As a garden flower, the crocus is still somewhat in repute; but that particular care and attention which would seem at one time to have been bestowed upon it has long since been given to more successful rivals, such as tulips, pinks, carnations, and many others. Thus illustrating the lines of the immortal Shakspeare, that 'novelty is only in request; and it is dangerous to be aged in any kind of course.' The above remarks apply to Great Britain only. On the Continent, but more especially in Holland, the Crocus is still cultivated with much care, and many new varieties raised."

We demur to so much of the foregoing as represents the spring flowering Crocus to be neglected, as we are cognisant of nearly three times the number mentioned by Parkinson, all of seminal origin; and this has led us to think that the species which flower in autumn might be made to vary in their colours, and to be as ornamental as their congeners of the spring are universally allowed to be. Their flowers in September and October would be equally acceptable as those of March and April, lending a brilliancy to the parterre when most of its occupants are on the decline; and the one represented in the woodcut we should select for the experiment.

Crocus speciosus.

It is found in meadows about Warrington and Halifax, where it has probably been naturalized; it flowers in October. This one, or *C. nudiflorus*, offer probability enough to induce a trial, and their roots may be obtained at almost any nursery.

Another plant which we believe capable of much improvement, from indications we have observed among its seedlings, is the *Iris fœtidissima.* Why it has received this name we are at a loss to imagine, as it possesses very much the odour of that favorite condiment to an English stomach, roast beef. It is plentiful in the west of England, growing with great luxuriance in stiff land. The plant attains the height of about two feet, and its flowers are a dull purple; produced in May. The brilliancy of the orange coloured seeds alone would make it desirable in shrubberies towards the autumn; and looking to the splendid results of seeding the English Iris (*I. ziphioides*), it appears quite possible to attain something approaching them in beauty, with the additional charm of scent, supposing it to be corrected by culture, from the species in question.

A third subject is the subjoined (*Veronica Buxbaumii*), which may be regarded as the type of a group of dwarf growing herbs of annual or perennial duration, individually beautiful even in their existing diminutive state, and which, could they by the art of the culturist be induced to produce only larger flowers, without other enhancement, would soon outrival numbers of straggling objects that are tolerated for want of more suitable forms.

Veronica Buxbaumii.

There is a considerable number of British Speedwells, and not one among them but possesses high claims to notice from real intrinsic loveliness. Who but admires the lovely Forget-me-not, even denuded of the association which its name conveys? and but slightly inferior is the common Brookline (*V. beccabunga*), or Germander (*V chamædrys*). The Rock-speedwell (*V. seratilis*) is equally esteemed, and the whole of them, we believe, may be made to contribute, in some position or other, much to the general embellishment of our gardens.

EDITOR.

CULTIVATION OF THUNBERGIA.

THE object in view, I hope, will be deemed a sufficient apology for the liberty of addressing you respecting my success in the culture of the Thunbergia in the cottage window, having never seen it but in my own, and feeling confident nothing but the supposed difficulty of its being a stove plant can keep it from being extensively cultivated for the same purpose; certainly a more interesting and suitable object, for the situation, cannot be conceived; its rich and beautiful flowers, produced in such profusion for four months, as completely to cover a trellis of six feet circumference, and that, too, with very little trouble, the flowers numbering nearly one hundred and fifty expanded at one time, which was kept up until the middle of October, to the admiration of all who saw it, which was not a few as it was in a good thoroughfare; many persons stopping to look at the strange plant, and some half dozen making bold to knock at the door to inquire the name of our window beauty.

I will relate to you my system of cultivation; though somewhat dissuaded from the attempt by the representation of the person of whom I purchased them, who stated that it was a stove-plant and of difficult culture, but being strongly prejudiced in favour, I determined to possess two plants of Thunbergia alata, and potted them in a twenty-four-size pot, in peat, leaf-mould, and a small quantity of loam, sufficient silver sand being added to make all porous; after placing them in a south window my plants progressed well and to my satisfaction, and they soon came into bloom; when lo! the flowers began to fall without expanding (much to my regret). I made every inquiry of those who I thought could assist me, but without success; still, I may say, obstinate in my endeavour to overcome the difficulty, and considering if I succeeded so far as to bloom them, there must be a cause for the apparent failure,—as a last resource, I repotted them into a twelve-size pot, and in one week I had the gratification to see the objects of my regard again in a good state, and soon after in full flower to the extent I above stated, which continued until the middle of October a perfect picture; the foliage looking healthy to the last, which is not always the case: the cause of which I conceive to be the want of pot-room, in this particular I conceive them to be very impatient, as my plants were not by any means what is termed pot-bound.

I should have stated also that I occasionally watered them all over, laying the pot with the front downward to do as little injury to the flowers as possible. Leaving this entirely for you to make what use of it you please, hoping it will be the cause of the more extensive cultivation of my favorites, which I feel confident needs only a trial to be as great a favorite with all.

SUB-NOVICE.

GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

DIADELPHOUS. Having several stamens joined at the base into two separate bundles.

DIANDROUS. Having only two stamens.

DICHOTOMOUS. Forked, when branches are divided at each ramification into two equal parts. It also occurs in the leaves of a few plants, though but rarely.

DICOTYLEDONES. An extensive natural class, containing many prominent forms. It is distinguished by the plants producing more than one cotyledon, or seed-leaf.

DIDYMOUS. Borne in pairs, double.

DIDYNAMOUS. Having four stamens, two of which are longer than the others.

DIFORMIS. Contorted, having some peculiar or unusual shape.

DIFFUSE. Spreading in an irregular horizontal direction.

DIGITATE. Having an outline like the fingers of a hand spread open.

DILATED. Flattened into a thin, delicate lamina, or plate.

DIMIDIATE. Divided into two halves. Also expressive of a perfect development of one half and an imperfect state of the other.

DIMORPHOUS. Having an irregular singular shape, a departure from the ordinary forms of similar parts.

DIPTEROUS. Winged.

DESCRIPTIVE LIST OF NEW PLANTS.

ARISTOLOCHIEÆ. *Gynandria Hexandria.*

Aristolochia gigantea. An extensive stove-climber, with cordate approaching to reniforme leaves, and large axillary pendent flowers. The tube is cream-white, tinged with green, the lower half is oblong, inflated, obscurely veined, three-angled at the back, and having two pairs of oval depressions or glands at the base. The tube thence becomes contracted, bent like a syphon, then enlarging and becoming excessively inflated on the anterior side; again it becomes contracted, and at once expands into the ample, singularly concave, almost conchiform limb, reticulated with veins, prominent on the outside, where it is cream-coloured, mottled with pale purple. Within it is white, or nearly so, but the veins are purple and areolæ sprinkled with purple. The margin is waved, and is split down at the anterior edge; the apex is tipped with an apiculus or short tail scarcely an inch long. Within, towards the mouth of the tube, the colour is much deeper, and of a more uniform purple. It is in reality a very striking and handsome flower, and rendered more worthy of cultivation in consequence of the absence of the horrid stench which will prevent the much larger blossoms of *A. gigas* from ever becoming favorite inmates of our stoves. According to Martius its native country is in the province of Bahia, Brazil. It was flowered in April, 1845, by Messrs. Lucombe, Price, and Co. of Exeter.—*Bot. Mag.* 4221.

AROIDEÆ. *Monœcia Polyandrïa.*

Ariopsis Peltata. An extremely curious new genus of Aroideæ, discovered by J. S. Law, Esq., in Tanna, district of Bombay, and of which tubers were kindly sent by him to the Royal Gardens, Kew, where they flowered in August, 1845. It is one of the best marked and smallest of any genus of the order, and reminds one more of the growth of a Cyclamen than of an Aroideous plant. From under the side of and all round a cluster of brown tuber-like root-stocks, half buried in the earth, spring the petioles, which then curve upwards and bear the small delicate peltate leaf. From the slightly sheathing bases of these petioles arise one or two scapes, little more than half the length of the petiole, terminated by a slightly drooping, cymbiform, carinate, purple-brown, acute spatha. The lower part of the spadix is incorporated with the deep purple-coloured spathe and bears the green ovaries. The upper is purple, club-shaped, and substipitate, and bears the yellow sessile anthers arranged in a circle within the cup-shaped cavities. The whole spadix is shorter than the spatha. The free portion of the spadix then withers, and the ovaries become greatly enlarged, when the weight occasions the scapes to bend down towards the ground, sometimes becoming more or less spiral.—*Bot. Mag.* 4222.

RUBIACEÆ. *Tetrandria Monogynia.*

Bouvardia longiflora. *Bouvardia* is a Mexican genus of Rubiaceous plants, named by Mr. Salisbury in compliment to Dr. Charles Bouvard, who was formerly superintendent of the Jardin du Roi at Paris. In most of the species the flowers are small; here they are large, pure white, and exhaling a delicious jessamine-like fragrance, whence it becomes a most desirable stove-plant. The plant was received by the Earl of Derby from Ifzabel. It inhabits also Santa Anista, according to Humboldt, where it is called *Flor de San Juan,* and the vicinity of Quaretano and Huanajuato; it has also been gathered in Guatemala by Mr. Skinner. For habit and form of corolla this is closely allied to *Hindsia;* but the seeds, according to Cavanilles' figure, are those of *Coffeaceæ,* not of *Cinchonaceæ.—Bot. Mag.* 4223.

ACANTHACEÆ.—*Diandria Monogynia.*

Eranthemum albiflorum. We are so accustomed to the bright blue of the flowers of an Eranthemum, that it is not easy at first to persuade one's self that the present plant is one of that genus, with its long, almost virgate racemes of snow-white flowers; yet a nearer inspection will show that it has all the essential characters of it. The fertile stamens, it is true, are not exserted, but neither are they in *E. montanum,* an acknowledged species of Eranthemum. It was raised from seed from Bahia, by Messrs. Lucombe, Price, and Co. of Exeter; its foliage is large and handsome, dark green, and its long spikes or racemes of pure white blossoms render the plant a pretty, though not a gaily coloured, object. It is cultivated in the stove.—*Bot. Mag.* 4225.

CUCURBITACEÆ.—*Monœcia Triandria.*

Trichosanthes colubrina. Seeds of this curious Serpent Cucumber were received by Sir John Hay Williams, Bart., of Bodelwyddan, near St. Asaph, from Puerto Cabello, in Equatorial America, and under the care of Mr. Sparrow, the gardener at Bodelwyddan, soon produced young plants. In growth the species resembles a cucumber, with leaves ten or twelve inches across, and varying in form from heart-shaped to three or five-lobed. The flowers are white, and beautifully cut into delicate threads, whence the botanical name, Trichosanthes, which Sir James Smith translated Hairblossom. The fruits, which hang down from the rafter to which the vines of the plant are trained, resemble serpents, are six feet long, and when unripe are singularly striped with green and white, which changes to brilliant orange. —*Bot. Reg.* 18-46.

CARYOPHYLEACEÆ.—*Decandria Trigynia.*

Silene Schafta. This is one of the prettiest of all hardy herbaceous plants. It is of dwarf habit, producing a great number of spreading, slender, downy stems, which form compact tufts, and are terminated near the extremity by four or five bright purple flowers, more than an inch long. Of these flowers that at the extremity of the shoot opens first, and those below it one after another in succession, so that the branches are by degrees covered all over with blossoms. It is a hardy perennial, which grows freely in any light rich soil, and is increased by seeds, which are produced freely, and it flowers from the end of June to October. It appears to be a native of rocky places, on a mountain called Keridach, in the district of Sawant, in the Russian province of Talysch, at the height of from 2,500 to 4,000 feet.—*Bot. Reg.* 20-46.

FABACEÆ.—*Diadelphia Decandria.*

Indigofera decora. A very pretty bush, with dark green pinnate leaves, from the axils of which the flowers are produced in horizontal racemes; they are of a light rose colour, and are very handsome. The standard of the corolla is oblong, nearly flat, very slightly keeled behind, nearly white, but pencilled with delicate crimson lines near the base. The wings are narrowly lanceolate and ciliated, of a pale bright rose colour. The keel is rather paler, and bordered with a woolly or very downy upper edge.

It was received by the Horticultural Society from Mr. Fortune, who found it cultivated in the nursery gardens at Shanghai. The climate of Shanghai is so cold in winter, that it may be a question whether this species may not prove hardy. At present it is treated as an ordinary greenhouse plant.—*Bot. Reg.* 22-46.

GESNERACEÆ.—*Didynamia Angiospermia.*

Gesneria Gerardiana. This remarkably fine *Gesneria* is a native of South America, from whence tubers of it were imported by the Very Rev. the Dean of Manchester, and forwarded more than two years ago to the Messrs. Rollison of Tooting, by whom it has been sent out as *G. Herbertii.*

As combining all the features of excellence that distinguish the genus Gesneria, this really splendid plant is unequalled among its congeners. It most nearly resembles *G. zebrina*, but has not the finely marked foliage of that species: in general aspect there is evident resemblance, and, with the exception just referred to, it not only possesses all the properties of the species under comparison, but does so in a more eminent degree, and is devoid of its stiffness and formal appearance.—*Pax. Mag. Bot.*

ORCHIDACEÆ.—*Gynandria Monandria.*

Saccolabium ampullaceum. A scarce and valuable plant, from the forests of Sylhet, from whence it was obtained and brought over by Mr. J. Gibson, his Grace the Duke of Devonshire's collector. Except in its flowers, it does not in general appearance materially differ from some species of the same and allied genera. It is of medium strength, and there is a pleasing proportion between the size of the flower-spikes and the plant, very unfrequent in the section to which it belongs. The flowers are borne on shortish spikes, and are remarkable among its division as being self-coloured, and are still more so among *Orchideæ*, from the unusualness of their colour, which is bright rose.—*Pax. Mag. Bot.*

Sarcochilus calceolus. This very singular species is a native of Manilla, whence Mr. Cumming sent it to Messrs. Loddiges. The lengthened stem is at variance with the usual habit of Sarcochilus, as also is the lip, so far as the very large size of its middle lobe is concerned; but no distinction appears to exist. The flowers are entirely white, except that the lip has a faint tinge of yellow, and some few streaks of crimson at its base.—*Bot. Reg.* 19-46.

CALENDAR FOR MAY.

THE season is now advancing when the various species of caterpillars and grubs will become numerous and destructive, if all possible means be not taken to thin their numbers as much as possible. Good service will have been done towards this end in the fields, pastures, and lawns by rooks, fieldfares, starlings, and other birds, where they have not been disturbed, who, in mild winters and early spring, destroy enormous quantities of the grubs of the cockchafer, Harry-long-legs, and also of the wireworm. The damage done by the first-named grub to lawns on a free light soil is very often serious—in some instances total destruction of the grass is the result. Those who have noticed the numbers of the winged insects of the second to be occasionally seen on lawns late in summer and in autumn, and who are aware that the food of their grubs are the roots of the grass and of other plants, especially those of the strawberry, lettuce, pink, carnation, &c., will be able to form some notion of the damage they would do if unchecked. They appear to be a very favorite food of the starling, especially during the winter and spring, whilst those birds remain in flocks, when they may be seen taking their walks in search of them with the regularity of soldiers at drill. Whenever any of the above-named plants are seen to droop their leaves, a grub will generally be found at their root, which it has eaten through and through—destroyed the plant. They should be carefully picked out and killed. The yellow wire-worm is frequently very abundant in good free loam, such as is indispensable to the zealous florist. They should be carefully picked out ere the loam be used for plants in pots, as they are very destructive to the roots. They are a very favorite article of food of the nightingale, a circumstance taken advantage of by those who cruelly murder those first of songsters by attempting to keep them in cages. The last two grubs, as well as the black wire-worms, may be trapped to some extent by burying slices of potato, carrot, turnip, or similar roots in the beds or borders where they abound: they will attack the slices, and should be occasionally picked out of them and destroyed.

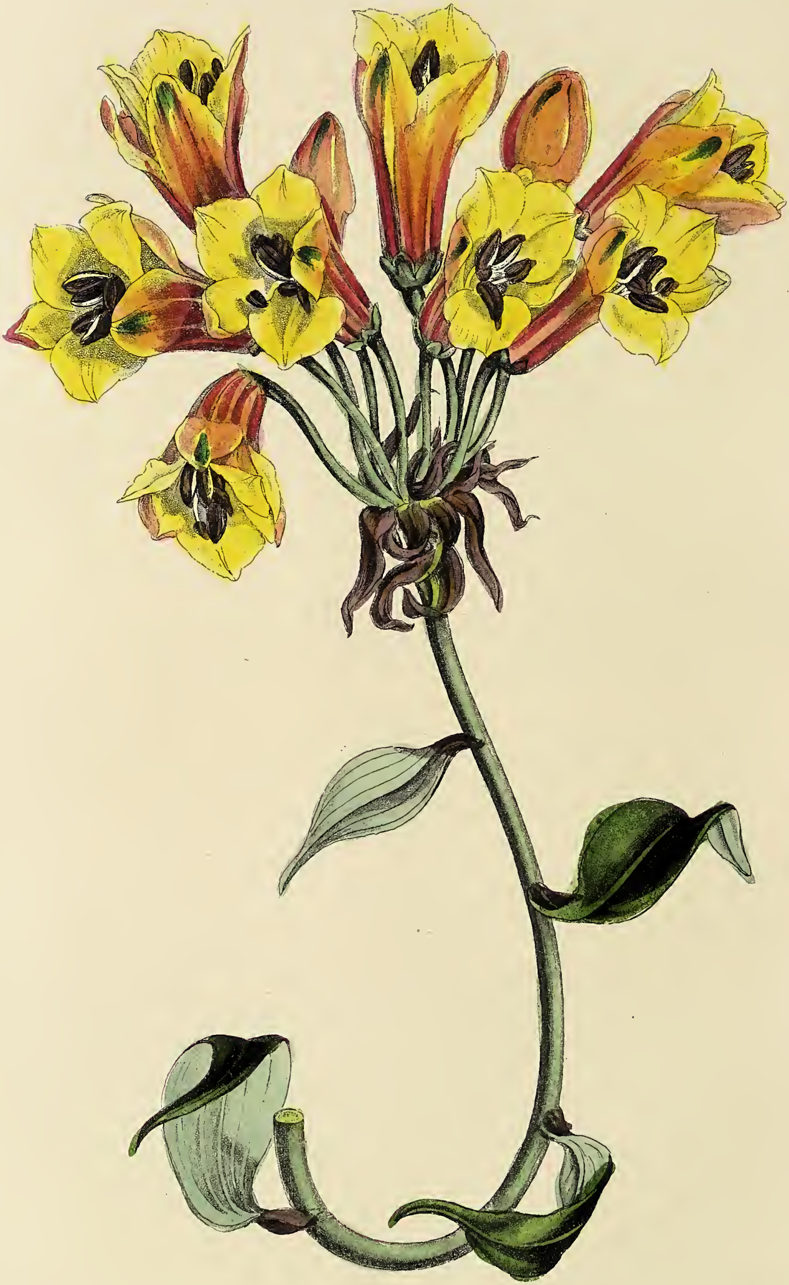
Against caterpillars every means should also be resorted to to keep them under, and here, as they are visible, picking them off the plants by hand may be had recourse to with great benefit. Small birds, also, especially of the finch tribe, should not be disturbed, unless incontestably proved to be doing more damage than good. A green caterpillar, which feeds on rape and others of the cabbage tribe, is also very destructive to mignionette, as it also is, as well as some others of the cabbage caterpillars to the various species of tropæolums. Indeed, few of them confine themselves to the plant which seems to be their proper food, and therefore every favorite plant should be carefully watched for them.

But perhaps the most effectual means of lessening the numbers of these pests, is to destroy the perfect insects, whether beetles, moths, butterflies, or others, to as great an extent as possible. Immense quantities may be thus got rid of by perseverance ; and as nearly, or quite, all the sorts are greedily devoured by poultry, the payment of slight premiums for their capture would be well laid out on that score alone.

Every exertion should be made to be prepared to fill the beds of the flower garden with permanent bedding plants as soon as the weather permits. Clear away all annual and other plants previously used as soon as they become in the least shabby, and renew or dress any of the beds that may require it before the next plants are turned out. Thin and tie up the advancing shoots of herbaceous plants, and stake and tie up all other plants requiring such attention. If the weather prove dry the recently turned out plants should be regularly watered, especially until they have taken a firm hold of the soil. During this month is a good time to sow the seeds of biennial and perennial flowers, as they are not so liable to kill or exhaust themselves by trying to bloom, as if sown earlier in the season. They should be sown in light rich soil, and should be properly attended to in watering, weeding, &c.

Attend to former hints concerning the greenhouse, especially in respect to air and water. Remove as quickly as circumstances will permit all plants out of bloom to such situations as their habits of growth require, so as to leave the house as thin as possible, to give the more room for the finer specimens. Be prepared with an available shading apparatus for all plant structures as the sunshine becomes powerful, so as to screen the plants and pots from its effects.

Pay particular attention to the training of the stove-plants as they advance in growth. If allowed once to get out of form it is very difficult to reduce the stronger growing sorts into proper shape again, and thus a good deal of trouble may be thrown away and an ugly plant only produced. Many stove-plants are liable to run up a few naked stems to a considerable height, forming a very unsightly specimen. Such as assume this habit are generally the better for being stopped two or three times, or oftener, at the commencement of their growth, so as to be enabled to form more bushy plants. D. M.



BOMAREA ACUTIFOLIA.

London, Groombridge & Sons, Paternoster Row

BOMARIA.

WITH AN ENGRAVING OF B. ACUTIFOLIA.

It is not altogether surprising, when we consider the immense number of new and beautiful objects which annually protrude themselves on the cultivator's attention, that some of the older recipients of his care should fall out of notice, and suffer neglect for a time, though, in some cases, the change may have nothing but novelty to offer in extenuation; for there are not a few of these supplanted species that would be gladly hailed as acquisitions, even now that their rivals have established themselves, could they be procured. But by a long course of inattention some are reduced to a few widely separated specimens, and others, perhaps, totally lost. An eminent nurseryman remarked to us, but a short time since, that he would gladly give a comparative high price for an old variety of the Calceolaria, called the Harlequin, but it could not be found; and the same may be said of many other even finer subjects. The plant which forms our figure is, indeed, an exemplification of the case. It was introduced from South America, in 1828, and was cultivated for some time, till the influx of novelty at a subsequent period drove it from its position. When first known, it was regarded as an Alstrœmeria, but has since, with some other species, been removed by the Hon. and Rev. W. Herbert, in his excellent monograph of the order, to the genus in which it now stands. It is a twining plant, with tuberous roots, deciduous stems, extending several feet in a season, amply clothed with bright green shining foliage; and, when properly treated, produces its lovely flowers with great freedom. Like its allies, the Alstrœmerias, it delights in light, rich earth, with a sunny position, and to have plenty of water through the hot months of summer. It is quite hardy; and we scarcely know a more desirable plant for covering dwarf walls, trellis, or similar appurtenances to the flower garden. In this position it flowers from August to October; but when treated with a pot and a place in the greenhouse, its beauty is continued for a month longer. During the winter the roots should be kept dry and dormant. We are indebted to our respected friend, Mr. E. A. Hamp of South Lambeth, for the opportunity of obtaining a drawing of this really beautiful and valuable plant.

ADVICE TO PURCHASERS OF NEW PLANTS.

Petunias. Perhaps no family of plants ever rose so rapidly in favour and numbers as this has done in the last three or four years. The observations we have been enabled to make at various times confirms a preconceived idea, that it is only in the first attempts, where difficulty of any consequence is likely to occur in the "starting," as it is termed, of almost any kind of plant into the production of seminal varieties. Up to a certain period they all appear to adhere to the normal character with a degree of pertinacity which nothing but continually repeated attacks will undermine; but once beyond this period, an infinitude of variety is quickly established, and then comes the necessity of selection. So it has been with the Petunia: seed and seedling varieties are produced with equal facility; and though, perhaps, not two of a hundred will be found exactly alike, there is yet much too great a similarity pervading the majority of those usually seen to maintain the genus in proper estimation. We should like, therefore, to urge upon all who think of raising seedlings through the present season, to determine upon having distinction among their flowers, never to preserve two, however good, which may approach each other at all closely. It may seem paradoxical, but, to a dealer, the best *one* is worth more than both together, and this we believe few who are acquainted with the subject will deny. The most distinct, and therefore desirable, of the new ones to be had this season are the following:

Rendle's *Marginata superba.* An excellent-shaped variety, of tolerable good substance, and beautiful colours; the tube, or eye, is dark purple maroon, the shading of which does not run up into the clear white ground colour, but terminates near the mouth of the orifice, and the limb is boldly margined with rosy-purple.

Miller's Tiger is a mottled flower of a blueish-lilac tinge, variegated with a deeper purplish blue, and light divaricate veins. In point of colouring, it is an improvement on punctata, and deserving a place among other new ones.

Ivery's Pet Superb. This is decidedly the best formed and distinctly marked variety we have seen; but the flowers are so small that we fear it will not please many cultivators, though we are not sure that even where display alone is looked for, this will not be found as attractive as many of the larger kinds; for the plant itself is of neat, compact growth, and, consequently, the flowers are seen in a mass and to the best advantage.

Ivery's Meteor. A bright reddish-purple flower, well formed, and thick. We think it will be found useful among self-coloured flowers.

Jennings's Unique is a fine variety of the light class, being a delicate peach-blossom-coloured ground, margined with rose. A flower of this kind is highly contrasted when placed by the side of another, in the style of—

Miller's African. A dark purple, large and well-formed, particularly useful for bedding, as it is a colour by no means common, or at least among flowers of any pretensions to either form or size.

DAHLIAS. To those mentioned last month may be added *Girling's Duke of Cambridge;* an excellent show-flower of a novel, dark purplish-crimson colour. *La Polka;* a thoroughly useful flower of medium size, and bright crimson colour. *Turville's Essex Purple,* and *Essex Goldfinch;* two singular flowers; the first a mottled purple, and the latter a mixture of crimson, rose, and yellow; both quite up to the average in form and size. *Whales's Marchioness of Cornwallis;* white, an indispensable variety; should certainly be added wherever the colour is wanting. For merely ornamental purposes, there can be nothing more desirable than those termed "fancy varieties," many of them combining the most opposite colours; of these we would recommend *Dodd's Punch,* purple, white stripe; *Girling's Judy,* crimson, tipped with white; *Girling's Gaiety,* buff, tipped with white; *Whales's Madame Levett,* dark purplish-crimson, tipped with pure white; and *Whales's Ranuncula-flora,* pale yellow, with delicate bright rose-coloured tips.

FUCHSIAS. To the number of dark varieties in the former paper we may add *J. Smith's Eximia,* a beautiful flower, with bright carmine tube and sepals, and a handsome violet corolla. Along with it may be placed *Ivery's Trafalgar,* a large flower, having a red tube, the sepals tipped with green, and a fine purple corolla; and *Fowle's Exquisite,* deep pink or red tube and sepals, and scarlet corolla. The remarkably free habit of blooming which this variety possesses will ensure it a permanent position in collections.

WEST KENT PHILANTHROPIC SOCIETY OF GARDENERS.

CULTIVATION OF THE CHRYSANTHEMUM. BY MR. BIDDELL.

There are several species and numberless varieties of these beautiful and highly valuable autumnal flowers, some of them natives of our own as well as other lands; but those which claim our particular attention, and repay best for our labour, are principally derived from China, where they are seldom subject to the action of frost, and hence the necessity, with us, of resorting to the protection of glass structures to flower them in perfection. Their time of blooming is from October to February; which renders them the more valuable, as at that dreary season almost all the beauties of Flora are dormant.

There are several methods of propagation—either by dividing the roots, by layers, or by cuttings. To the latter method I give preference. I take off the cuttings about the middle of May, and pot them singly into small sixties, and place them on a slight bottom heat, with shade, of course; they will strike root in about a fortnight. The soil used for cuttings is sandy loam and leaf-mould. I then shift them into forty-eights, and place them in rather a shady situation, and, as they require it, are shifted into thirty-twos, using a stronger compost for each shifting, say about two parts turfy loam, and the rest well rotted dung and sand, with a little leaf-mould. After this they are placed in a situation fully exposed to the sun, never allowing them to get dry, and taking care to guard against saturation by the use of plenty of drainage. It is a good plan to plunge them up to the rims in coal ashes, to prevent too great an evaporation from the pots, which is very inimical to such luxuriant growing plants as the Chrysanthemum. Frequent waterings with manure water will greatly assist them. I never stop them, as I think it spoils their shape. They will form with their leader beautiful conical-shaped plants in most cases, though there are some varieties which neither stopping nor any other method will cause to assume a handsome shape.

I generally flower them in sixteens, which may be considered large enough for any purpose, excepting where they are intended for exhibition. When they have filled these with roots, I place them in a pit to protect them from the autumnal frosts; and as they flower I remove them to the greenhouse, where they are placed in pans of manure water, which greatly increases the size and beauty of their flowers.

The sorts I would recommend, from my own knowledge, as being best, are Achmet Bey, crimson purple; Beauty, pale lilac; Bijou, white, pink shaded; Campestroni, dark crimson-purple; Chancellor, pink and white; Minerva, pink and buff; Sparry, purple; Vesta, pure white, very early bloomer; Formosum, white, with primrose centre; Princess Maria, rosy lilac; Duc de Conegliano, scarlet crimson; General Foy, shaded and mottled purple; Lucidum, white; Superb clustered yellow; Superb white; Madame Pompadour, rosy lilac; Queen, pale rose; Enchantress, creamy white.

Mr. Kershaw preferred the middle of April for propagating; also to strike and grow these plants in a pot—contending that more blooms, and of much better quality, might thus be obtained. He recommended, if fine blooms were the object of the cultivator, to thin the flower buds early, leaving only one or two on each shoot or branch; he objected to stopping them at any time.

Mr. Bennison fully concurred with the essayist, and considered the middle of May ample time for putting in the cuttings. He preferred striking one cutting in each pot, and very much objected to the growing of three in a pot. He recommended, after the flowering season was over, and all danger of severe frost past, to turn the plants into a rich border, for the purpose of obtaining strong, healthy cuttings. After they are rooted they should receive no check, but be gently grown into bloom.

Mr. Cooper said that very nice compact little plants might be obtained by layering the branches in small pots (using rich compost) at the beginning or middle of September.

THE CULTURE OF BEGONIAS.

Now that the winter season is passing away and floral treasures begin to unfold themselves, it is but too like poor human nature to pass unheeded the plants which have contributed to our pleasure of the past, because they do not wear the gay livery of the present, forgetting that the future may come when we should gladly hail our old acquaintance; and, to prevent the disappointment which, as a consequence, must ensue at that time, if its objects are now neglected, I take upon myself to urge upon your readers the necessity of doing justice to these plants through the summer. They are acknowledged to be the best of winter-flowering plants we possess; but, if we deem them unworthy the little requisite attention now they are growing, it will be folly to hope for a display of blooms by and by. You have said a good word for them when occasion offered, and I trust will be able to afford room for these remarks. All the species of Begonia which have done flowering should be repotted immediately, before the press of other business prevents its being done in a proper manner. They delight in a soil composed chiefly of fibrous peat. Leaf-mould and sand must be added in proportion as the peat is "open," or of adhesive nature; the closer its texture, the greater quantity of the other ingredients will be required. Let this be well mixed, without breaking it too fine, as the roots love to cling round the stones or lumps of earth it may contain (our old practice of sifting the soil is being entirely superseded, and you see practitioners of many years' standing are not above benefiting by the improvement.) In the process of shifting, let the soil be cleared away from the rootlets, without injuring them more than can be helped, as they do not make fresh ones so readily as is sometimes thought; and, after having well drained the pots, place the plant in it, and press the new soil gently and equally among them. When finished, as their presence is not to be desired in the stove for some months to come, they may be placed in a pit or common frame, and by keeping it close a sufficiently raised atmosphere may always be obtained. For a month onward it will be necessary to cover them at night with a mat or two, to prevent the radiation of the internal heat and its consequent waste, and through the hot months of summer it will also be advisable to shade them slightly in mid-day, and to keep them well supplied with water to their roots, besides frequently sprinkling the floor of the pit to preserve a genial humidity about them. If these few particulars are duly observed, fine healthy specimens may be relied on for the next winter; and, if an increase is desired, it will be easily affected at any time through the summer, by taking off cuttings, potting them in sandy peat, and plunging the pots into a gentle hot-bed. Afterwards they may be treated in the manner of the old plants.

April 2, 1846. SENEX.

WINDOW PLANTS.

WE have been asked for a list of plants suitable for window culture, which must be low-priced, easy of management, and prolific of flowers. Now, as we regard the practice to be one of the surest indications of a progressive moralizing and intellectual mind, and to be of beneficial tendency, both to the owner and all who come in contact with them, we give, to the best of our judgment, a list of the kind, with perhaps more pleasure than ordinarily attends even the power of conferring an obligation.

Fuchsias are now indispensable, and may be bought at any price between sixpence and half-a-guinea, and in such variety, that our correspondent may suit a taste, be it ever so capricious. They grow best in peat, or leaf-mould, and loam; should have an airy situation, a liberal supply of water in hot weather, and be carefully tied to neat sticks as the branches extend.

Petunias grow and flower very well in such a situation. They delight in soil rather more retentive than the above, which is easily provided by increasing the proportion of loam.

Verbenas are equally beautiful and varied in colour with either of the above, and, in addition, are agreeably fragrant. They should be grown in peat, or leaf-mould and sand. The varieties, having a pendent character, in the manner of *V. melindres*, may be allowed to trail over the pot, while the erect-growing kinds will require support from sticks. If room can be allowed for a large pot, a fine effect is produced by growing two or three different kinds together; thus, an upright white and a blue one of the same habit may be trained together, and the pot be entirely covered with a creeping crimson variety.

Roses. The Chinese varieties are well adapted for cultivating in pots, and bear the confinement of a room remarkably well. They delight in rich loam, lightened with a small proportion of peat.

Pelargoniums, or *Geraniums,* we do not estimate so highly as the foregoing, for, excepting the scarlet kinds, they do not generally bloom for any length of time. Their treatment may be assimilated to that of the Fuchsia.

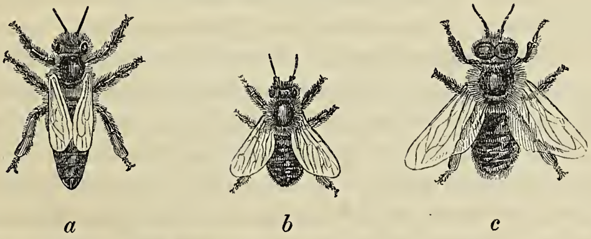
Heliotrope—V. Peruviana is frequently grown in pots for this purpose, on account of the scent, but this is far too powerful for a sitting-room. Peat-and loam suit it, and, being a gross feeder, it should have plenty of water.

Aloysia citriodora. The lemon-scented Verbena is a highly esteemed favorite with the fair sex. It should be grown in peat or leaf-mould and sand.

Mignonette, Myrtles, Alonsoa grandiflora, Camellias, and various dwarf annuals may be added, according to the convenience at command or the pleasure of the owner. We cannot close this paper without mentioning a few matters connected with their general management of essential consequence both to the health of the plants and the proper enjoyment of them. First, do not keep them standing in pans, as the stagnant water is very injurious to their roots. Second, admit air to them whenever it can be borne in the room, and frequently wash the leaves with clean water, to remove accumulations of dust, and to impart an air of vigour and freshness to them. Third, and lastly, keep the stems neatly tied, the whole plant free from insects, and the surface of the soil in the pots often stirred, and you will not fail to have fine plants and plenty of flowers. EDITOR.

BEES.

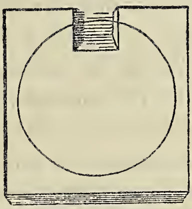
THE economy of these truly wonderful and valuable little insects is a subject fraught with interest of the highest order to all who care to bestow a thought on the beautiful, harmonious workings which pervade the natural world, and is one which has occupied the attention of many of the most eminent men, both of the past and present ages. Regarded as an adjunct either to the garden of the cottager, or the more extended one of his richer neighbour, bees are to the first often his only possession, and their prosperity of the utmost consequence to his own; nor are they less regarded in the latter position, though their importance there amounts to no more than the preservation of a luxury. Still, in either case, the most economical and proper mode of management is equally desired, and information of a practical nature, tending to their advancement, and the consequent benefit of the proprietor's interest and pleasure, must ever be valuable. A new edition, the third, of Taylor's 'Bee-keeper's Manual,' has just been placed in our hands, and to say that it has accomplished much of this is merely to reiterate what others have previously remarked, and what the extended sale of the former editions fully proves. In the present are several important additions, both of illustrations and original matter, and we are pleased to perceive the author has avoided the too frequent practice in works of this kind, of filling his pages with useless particulars and old wives' tales. His wish has evidently been to give, in the least compass, the result of actual experience, practical utility being the object kept steadily in view, with little or no reference to the numerous fancies and absurdities common to the subject. In this way a great deal of valuable matter is condensed in the space of a small volume, of moderate price. The following extracts will give the best idea of the style in which the book is written, and of its usefulness to the apiarian. The work commences with a description of the three kinds of bees composing a stock hive.



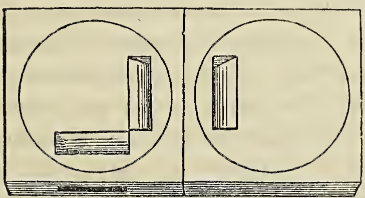
a A queen, or mother bee.
b The common, or working bees.
c And (during part of the year,) the male, or drone bees.

"In a community thus constituted, they dwell together in great harmony, working for the general good, recognizing one another, but permitting the intrusion of no stranger." On the subject of "swarming" we have the following very just remarks: "With bees it is frequently an act of necessity only, and then it may commonly be prevented by timely enlargement, and decreasing the temperature of the hive. As soon as warm weather sets in, a common hive becomes filled with an augmented population. Every part is crowded to suffocation; no storing room is left; the heat becomes insupportable; and, at length, the emigration of a part of the inhabitants takes place. On the occasion of a first swarm the *old* queen accompanies it, usually leaving her successor to the throne still in embryo. About an equal number of old and young bees, and (though not without exception) several hundred drones, form the swarm. It is not an unusual thing to hear a boast of a number of swarms, or casts (as the second swarms are called), from a stock of bees, which will even sometimes throw off a swarm the first year. Nothing is proved by this but the fact that an otherwise thriving colony has been weakened, if not destroyed, by being split up into fractions, which ought to have been held together, as the greatest security against every evil, and the surest source of profit to the proprietor.

"Wooden Hives, or Boxes. Whatever may be said in favour of straw hives, as a cheap resource for cottagers, there is no doubt of the preference to be given to wooden ones, both in point of durability and as affording greater convenience to the bees; for a square form is better adapted for the economical placing of the combs than any other. Different opinions are entertained as to the best size of bee-boxes; but I think that much must depend on the number of bees they are to contain, and on the honey locality, which varies exceedingly. There must, also, be a reference to the proposed manner of working them; for where no swarming is permitted, a larger hive may sometimes be used. A good size is eleven inches square, and nine inches deep within side; the thickness throughout being not less than an inch, or, if exposed, a little thicker. The entrance into a hive is generally cut out of its bottom edge; this has a tendency to cause decay in that part, particularly if of straw, besides that a hole so made affords but indifferent protection from driving wet or scorching sun, or as giving facility for the escape of moisture from the hive. The plan adopted by me, and many other bee-keepers, is much better—that of grooving out a passage in the thickness of the *floor-board* in front, gradually sloping upwards into the hive. This groove may be four or five inches wide, and three eighths of an inch deep where the hive crosses it. Thus made, it is easily contracted at any time by the insertion of small wooden wedges; for it is always better that the requisite space at the door should be given laterally rather than in height."



On the subject of collateral hives, as entirely superseding the cruel destruction of the bees necessary with the old hives, and so positively injurious to the interests of the bee-keeper, Mr. Taylor has several excellent remarks; one, which is applicable to the working of any number or description of boxes, we subjoin. It is an improvement on an American method, where they place the full hive behind a new one, thus obliging the bees to pass through it when going either in or out. "On the whole, I prefer placing the two hives side by side, rather than front and back, as shown in the engraving, in which the stock hive is supposed to occupy the right-hand board. The same result follows, with greater convenience and better ventilation.



The two boards must be precisely alike in size and thickness, with the entrance passages cut out from beneath. There must, however, be two entrances to the board intended for the second hive—one in front, and the other at the side; and I recommend that all the doorways, in hives to be thus worked, be not less than six inches wide. When room is required, the first board, with its hive, must be moved so far sideways that the second one can precisely occupy its place. At the same time it must be turned half round, so that its mouth, and that on the side of the new hive, meet and fit close together." For the sake of uniformity in appearance, it is recommended to have three boxes worked together, with removable slides between, that the entrance either of the side boxes may be closed or opened at pleasure; and a very graphic description is given of the formation of such a bee-house, together with proper management, under all circumstances, showing the advantages to be gained by the method proposed; it is also illustrated with an engraving. The boxes are there shown separated one from another, the better to explain their form and positions; but when in use they stand closely together, and may be covered or not with an ornamental structure, according with the taste of the proprietor, in the manner of that shown at the end of this paper.

Under the head of *Summer Management*, we have the following important, but too frequently neglected advice:—"We must now suppose the colony is fairly at work, and in fine weather. Should the reverse be the case, and bad days succeed each other immediately after swarming, and before any provision is accumulated, recourse must be had to feeding, or starvation might be feared. Under any circumstances, many apiarians advise giving honey, or a syrup of sugar and water, to a newly-hived stock of bees, and this is a matter deserving more attention than it has received. It is well known that, on leaving the parent hive, the bees carry with them a good deal of honey. There is little doubt but that the main object of this provident proceeding is to enable them at once to commence the work of comb-building in the new dwelling, and this they do almost as soon as hived. The material of which the combs are so curiously formed is wax, *secreted by the bees themselves*, and not any substance conveyed into the hive, as is generally but erroneously supposed. To enable them to form this secretion, the bees must have access to some saccharine matter (a syrup of sugar and water has been found to answer the purpose as well as honey); and this is the first thing sought by the new colony; so that an early supply of it greatly facilitates proceedings."

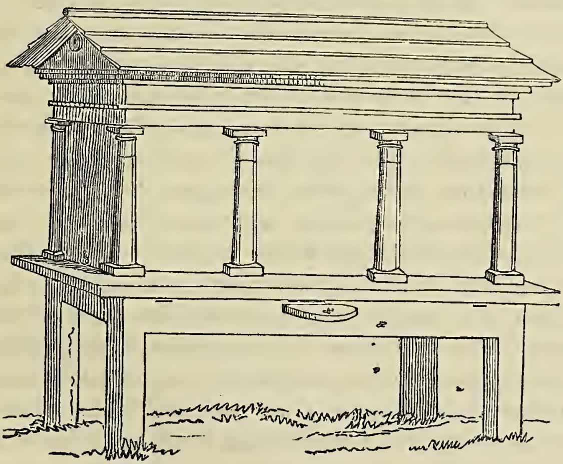
After describing the wax, propolis, honey, pollen, or brood-bread, the summer management is continued; and on *Ventilation* the author says, now give more room and increased ventilation, in hot weather, to collateral hives, by placing the bell-glasses over the holes on the top of the pavilion (the centre box of the three before described). It is well, previously, to tie a piece of crape over the opening at the top of the glasses, to prevent egress in that quarter.

"*Temperature.* Next commence an examination of the thermometer. As the heat rises in the side box open the ventilator. From observation I am inclined to think that the most favorable degrees of warmth for the prosperity of the brood, and the comfortable working of the bees, are 75° to 90° in the pavilion, and 65° to 75° in the side boxes."

Other lucid remarks on water, shade, and insects, bring us to the autumnal management; with one extract from which we must conclude, cordially recommending the work to the perusal of all interested.

"The subject of autumnal unions of bee stocks has hitherto not received all the attention which its importance demands. Perhaps this is, in part, owing to the ignorance of a ready mode of accomplishing the object, or of obtaining the necessary material, and in some degree from the supposed difficulty of maintaining the bees when collected in a large body through the winter. The latter obstacle is removed by a reference to what has been said on the subject of winter store, in the last paragraph. I hope I shall be able to show that, by a safe and simple expedient, weak stocks, joined two or three together, may be rendered strong and vigorous; at the same that, by saving instead of destroying countless thousands of valuable lives, one great objection to the use of cottagers' common hives is obviated altogether. Hitherto, as respects the practice of suffocation, brimstone has been almost the sole method resorted to for obtaining the honey, and this act of ruin and murder is usually perpetrated in the autumn of the second and third year. The proprietor is probably not aware that the bees he is at this time sacrificing are always the most vigorous and useful. The old ones gradually disappear in the autumn, leaving the hive, no matter of what age, in possession of the bees bred chiefly, if not entirely, in the same year, and of the utmost value in the following spring. This fact is important; for the practice of suffocation has often been ignorantly defended on the plea of advanced age in the bees. The late Apiarian Society of Oxford is entitled to great credit for the attention it bestowed on this branch of bee economy; and the method of procedure which I am about to explain was there successfully practised; but it should be done in September, and in fine weather.

"The custom of stupifying bees by some narcotic substance has long been known and practised. By subjecting them to the fumes of this, they become insensible and harmless for a time, but soon recover, with no ill effects subsequently. The apparatus for fuming, as it was used at Oxford, is merely a tin tube, eighteen inches long and three quarters of an inch in diameter, readily made by any tin-worker at little expense. One end is extended and flattened, to adapt it to the entrance of the hive, whilst the other is applied to the mouth of the operator. In the centre of the tube is a box two inches and a half long, and two inches in diameter, to contain the fumigating material and to receive which one end is made to draw out like a telescope. The substance usually recommended for the fumigation or stupifying of bees is a kind of fungus, found growing, often very large and round, chiefly in rich pastures or plantations in the autumn. It is the Lycoperdon (Bovista) gigantea, but variously called—as devil's snuff-box, furze-ball, or puff-ball. It should be gathered when nearly ripe; dry it in the sun or a cool oven, and preserve it from damp. It is then a spongy substance, containing brown dust, and burns with an offensive smell. The difficulty often of procuring this material led me to make trial of another kind of fungus, called, I believe, Racodium cellare, or mouse-skin bissus. It may be found growing in large wine or beer vaults, in immense dark-coloured bunches or festoons, often wearing a handsome appearance. It requires no drying, but ignites at once readily. From the experience I have had in its use, I can recommend it as even more efficacious than the other fungus. Whatever be the material employed, let the box of the tube be about two thirds full, and, if well lighted, the breath will cause it to send forth smoke abundantly. The hive which it is intended to deprive of its tenants must be lifted gently from its place soon after dusk, and placed over some kind of receptacle. The best thing is a box or bowl, about ten inches square inside, and five inches deep, with a flat rim all round, of three or four inches wide. The first introduction of smoke will cause an uproar among the bees, which will speedily be followed by silence, as they fall down from its effect. A minute or two generally suffices for this, assisted by striking the sides and top of the hive. When all is quiet turn up the hive, and you will have received the greater part of its inhabitants in the bowl, in a stupified state and perfectly subdued. A portion will remain sticking in the combs, which must be cut out one by one, and the bees swept with a feather into the bowl, where a little more smoke will, if needed, keep them quiet in the interim. As respects the queen, if perceived, as she generally may be, she may be taken away to prevent a quarrel, but the bees will commonly dispose of her in their own way by the next morning. The whole being collected, they soon begin to show signs of returning animation; and when this is about to take place, sprinkle them freely with a mixture of sugared ale. Next, lift quietly from its stand the hive to which they are to be united, placing it over the bowl, but leaving no opening, except the mouth for ventilation. The bees from above, attracted by the scent, will speedily go down and commence licking the sprinkled ones. The whole are soon intermixed, and ascend together into the hive over them in perfect good will. Leave them till early the following morning, when the bowl will be found empty and not a single life lost. Replace the doubled hive on its original stand, and the work is complete. If it is thought desirable still further to augment its strength, a second union may be made in the same way, a day or two afterwards. All that remains is to see that the hive contains honey enough to last the winter; and whatever is wanted to make up about twenty pounds must be given for that purpose."



THE CULTURE OF PIMELIA SPECTABILIS.

THE beauty and useful character of this genus for ornamental purposes requires no encomium, being fully established by its frequent occurrence in collections of every degree. The species which is the subject of this paper is, however, one which has caused not a little dismay by its apparently precarious existence, several fine specimens having, to the writer's knowledge, died suddenly in a most inexplicable manner, after having grown luxuriantly for three or four years, and exhibiting indisputable health up to a very short period of its entire dissolution; in some cases no observable difference was to be seen in the plants till within a day or two of their death, and the occasion of it all was a seeming mystery. But experience has taught us something of the cause, or, at least, a means of obviating it is now pretty well known, and, so far as we have gone, appears to be worthy of reliance. When the plant was first made known, those who grew it for sale found it was not possible to strike it in the ordinary way, from cuttings, fast enough to supply the demand; and, in addition to the seed obtained, recourse was had to grafting it. The plants produced by the latter mode were rejected by most purchasers, who in preference selected the seedlings, believing the plant to be safer on its roots than on those of another species. The result proved them to be wrong in this instance; for, of all that died in the manner described, it was remarked that each individual had been originated from seed. This aroused attention, and an inquiry into the state of the "worked" or grafted plants found them to be, at the same age or older, in a thriving luxuriant state, since which no dependance has been placed on seedlings, as few have been found to survive the fourth year. Why this should be I will not undertake to explain. It may arise from the excessive vigour with which a plant of the kind will grow in the first years of its existence, loading itself with unassimilated matter to the inducement of a plethoric habit, which must ultimately terminate in death; or it may be that the species is naturally short lived. The solving of this problem would be interesting matter to the phytologist, in doing which he would render good service to the science, if the cause was correctly determined and explained. The first point in the culture of this plant is, then, the mode of propagation; and, as grafting appears to have so decided an advantage, I shall proceed to describe the manner in which it is done. The stocks should be healthy young plants of the allied species, *P. decussata,* from two to three years old; the period most suitable for the operation is from May till August: at any time between those months when wood about half ripened or rather more can be had from *spectabilis.* Let the stocks be cut over wherever the stem is of equal thickness with that of the scion: the cut should be a long slanting one, and that of the scion of exactly the same size, that the two, when placed together, may fit closely along their outer edges, as it is at the meeting of the bark that the union first takes place. When nicely fitted, let the joint be bound neatly and tight over so as to thoroughly exclude air. In the hands of an experienced propagator this operation occupies less than five minutes, and the application of anything besides the bast for binding is seldom necessary, though the amateur operator may possibly find an advantage in covering the whole with grafting wax, as it is essential to keep the joint from all drying influences. When complete the plant should be plunged into a moderate bottom heat, such as is afforded by a tan bed, and covered with a hand or bell glass, to prevent evaporation. I should have remarked, the leaves of the scion are removed from about the part where the joint is made, but are left untouched in every other part. The union takes place in about a fortnight, when air should be admitted by raising the glass an inch or two every day, but the increase must be effected in a gradual and careful way, as any check now, may prove fatal. It is always better to continue the plants in the heat until they have fairly started into a new growth, when they may be shifted with certainty, and will progress to the satisfaction of the cultivator.

Their treatment after this is precisely that of mature plants, and may be thus described: the soil most suitable is a mixture of equal parts of loam, fresh from a pasture or common, with the turf chopped up in it; fibrous peat, used as roughly as is consistent with the size of the pots; and fine silver sand. These ingredients must be thoroughly incorporated, and a drainage of potsherds placed of sufficient depth to ensure a passage for all superfluous water to pass away. The plant is potted into the mixture above mentioned, keeping the base of the stems a little elevated above the rim of the pot, and pressing the soil about the roots, which should be carefully spread out near the surface of the soil. For small plants it is advisable to use only moderately sized pots, though, once established, no plant appears to delight in abundant scope for its roots more than this, and if the proper precautionary measures are taken to secure a good drainage, a large shift may safely be given. Through the summer a cool shaded place, where the plant will receive plenty of air and be free from the drip of trees, should be selected for it, where it must be well watered and frequently stopped by pinching out the points of the shoots, to induce it to become dwarf and bushy, and thus consequently to increase the number of blossoms in the next season. In winter, the front shelf of a greenhouse, or floor of a low pit is most suitable. It is not tender, merely requiring to be protected from frost, but is very impatient of a confined damp atmosphere, or the absence of light.

F. de G. Constadt.

GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

Discoid. Discoidens. Round; placed in a circle; a large spot of colour, having a distinct margin of another shade. Applied also to anything flattened and circular, resembling a discus, or quoit.

Discus. Disk. Fleshy annular expansions surmounting the ovarium of some flowers; the inner portion of the surface of a leaf, and the central part of a composite flower.

Dissectus. Applied to the foliage of plants when they are serrated, or cut very deeply.

Dissepiment. Thin vertical partitions, by which a seed-vessel is divided internally.

Dissiliens. Descriptive of the forcible action with which some seed-vessels separate and scatter their seed.

Distichous. Having leaves or flowers arranged in two opposite parallel rows.

DESCRIPTIVE LIST OF NEW PLANTS.

MALVACEÆ.—*Monadelphia Polyandria.*

Sida (*Abutilon*) *vitifolia.* One of the handsomest of the genus, but too much of the "mallow" kind to be a general favorite with cultivators. Seeds were sent from Chili to Mr. Veitch, by his collector, Mr. W. Lobb, in 1844, and plants blossomed in the greenhouse in May, 1845. The plant was first, however, brought to Europe by Captain Cottingham, in 1836, and was cultivated in the open border, in Dublin, for three years without any shelter. In England generally, however, it requires the protection of a greenhouse. The plant forms a shrub, attaining a height of from four to six feet, with large, ample foliage on branches which terminate in corymbose racemes of showy blueish-lilac flowers.—*Bot. Mag.* 4227.

SCROPHULARINEÆ. *Didynamia Angiospermia.*

Torenia edentula. This very pretty annual made its appearance in some earth in flower-pots in the stove at Kew, and had no doubt come from some part in the East Indies. On examination, it was found to correspond exactly with a species from Assam, called by Mr. Bentham *T. edentula.* It is probably found also in other parts of our Eastern possessions. The broad calyx, as long, or nearly so, as the tube of the corolla, is very characteristic of this species; and the two deep purple blotches on the lateral lobes of the limb which renders the blossom so bright and lively, are conspicuous even in many dried specimens. It has an erect, branching stem, and opposite, ovate, acuminate leaves. The flowers are pretty freely produced, the tube of the corolla is green, tinged with purple, and is almost wholly included in the calyx; the limb is composed of five, nearly equal, rounded lobes, yellowish white, variegated with pale purple, the two lateral lobes, having each a deep purple blotch. The plant flowers in July and August.—*Bot. Mag.* 4229.

VERBENACÆE.—*Didynamia Angiospermia.*

Ægiphilia grandiflora. Of the native country of this very pretty shrub, I regret to say, we are ignorant. We are indebted for flowering specimens in December, 1845, to Mr. Henderson, of Pine Apple-place, who received plants from Mr. Mackoy, of

Liège, under the erroneous name of "yellow *Rondeletia*." It is quite clear that this is no Rondeletia, nor any Rubiaceous plant, but a true *Ægiphila,* with singularly large yellow tubular flowers, borne in terminal corymbes, well worthy a place in every collection, flowering as its does in the middle of winter, in a warm stove, and then the flowers are succeeded by the glaucous-blue berries.—*Bot. Mag.* 4230.

LENTIBULARIEÆ.—*Diandria Monogynia.*

Pinguicula orchidiodes. Among the many interesting objects to be seen at the Royal Gardens at Kew, during the latter part of the present winter (1845-6), was a number of pots of this most lovely species of *Pinguicula,* in full blossom, plunged in sphagnum and other mosses, in cool stoves, where they flourished as well as if they had been in their native mountains of Mexico. The plant is stemless, and the leaves are of two kinds, the outer or lower ones small, numerous, closely imbricated, resembling scales; the upper or inner ones comparatively larger, fewer, and resembling those of an *Echeveria.* The flowers are in size and form somewhat like those of the violet, of a pleasing bright rosy purple, having a long, slightly-curved spur behind.—*Bot. Mag.* 4231.

SOLANACEÆ.—*Pentandria Monogynia*

Solanum lycioides. This charming shrub was found by Mr. Hartweg in the valley of San Antonio, in Peru, and flowered in the garden of the Horticultural Society, in Nov. 1845. It has a neat habit; the flowers are of the richest sapphire purple, enlivened by a bright yellow eye, and in the wild state appear in clusters, so as to load the little spiny branches. In cultivation, it loses some of its stiff spiney habit, and has not hitherto yielded flowers in clusters, but they are larger than in the wild state. It is by no means new to Europe; for it was represented in Jaquin's 'Figures of Rare Plants,' above sixty years ago, but it has disappeared from the gardens of this country. It is found to be a greenhouse plant, which appears to succeed in almost any sort of soil, but to prefer sandy loam mixed with a little rough peat.—*Bot. Reg.* 25-46.

FABACEÆ.—*Diadelphia Decandria.*

Oxyramphis macrostyla. Among the doubtful Crotalarias of De Candolle's *Prodromus* was one, taken up from Don, which was called *C. macrostyla,* and described with diadelphous stamens and a long feathery style. That plant Dr. Wallich afterwards separated under the name of *Oxyramphis*. It is one of the species of which we have seen no specimens, but the description so much resembles the shrub before us, that we presume them to be the same, although we are unacquainted with the fruit. It may, however, belong to the genus Campylotropis, which is equally unknown to us. It is a very pretty greenhouse shrub, which flowers in October and November, and grows freely in sandy loam and peat. It rises to the height of four or five feet, and loses its leaves in the winter, at which time it should be allowed to sink to rest. Its flowers, half crimson and half rose-coloured, are very pretty, and appear in short close racemes from every axil. It was sent from the Botanic Garden, Saharunpur, in August, 1837, by Dr. Falconer, and flowered in the collection of the Horticultural Society in October, 1845.—*Bot. Reg.* 28-46.

LAMIACEÆ.—*Didynamia Gymnospermia.*

Cedronella pallida. A species with pale, dull red flowers, from the north of Mexico, whence seeds were obtained by F. Scheer, Esq., who gave them to the Horticultural Society, in whose garden the flowers were produced in October last. It has hitherto been treated as a greenhouse plant, but it may prove hardy enough for bedding out in a flower garden in summer.—*Bot. Reg.* 29-46.

LEGUMINOSÆ.—*Decandria Monogynia.*

Chorozema triangulare. This species is one of the prettiest of its interesting family, and in the greenhouse, when in a healthy state, is always interesting, its singularly-angled bright green leaves rendering it so, even when not in flower. It is a native of New Holland, where it was discovered by Baxter. To this country it was introduced in 1830, but is still somewhat scarce, which may arise in part from the delicacy of its nature, it being one of the more delicate of the genus. In habit it is naturally less straggling than some species of Chorozema, and by judicious managing can be rendered very compact. It is in an intermediate degree robust, well clothed with leaves, and bears in early spring very freely its short spikes of lively scarlet and purple flowers.—*Pax. Mag. Bot.*

ACANTHACEÆ.—*Diandria Monogynia.*

Eranthemum variabile. A lovely species, but very little known, bearing all the summer in great profusion its spikes of pretty light purple flowers, which at their throat are slightly marked with rosy crimson. Quite small plants flower very freely; indeed, it is naturally dwarf and well clothed with foliage, whose silvery marking on the deep rich green, always constitute it a pleasing object. It is a New Holland species, but succeeds best in a cool stove.—*Pax. Mag. Bot.*

LEGUMINOSÆ.—*Diadelphia Decandria.*

Clitorea ternatea major. The Indian *Clitorea ternatea* is well-known. The present subject is from Sydney, New South Wales, whence seeds of it were received by the lady of B. Harrison, Esq., a gentleman, neighbour to J. Cook, Esq., of Brooklands, Blackheath, Kent, and to whose successful gardener, Mr. W. P. Ayres, they were presented; and, being raised, when in flower proved to be a distinct and very superior variety, well deserving to be distinguished by the name now given it. The flowers, Mr. Ayres states, are both larger and deeper in colour than *C. ternatea,* while the leaflets are more obtuse at the points, and are singularly marbled with yellowish-green on a dark-green ground colour. It also flowers much more freely than any of the varieties of *C. ternatea* which I have cultivated. It will doubtless prove a very easily cultivated stove or warm greenhouse climber, requiring to be sown in the early part of March, in a brisk moist heat of 66° or 70°, and grown freely at about the same temperature. It requires plenty of moisture in the growing season, both at the roots and over the foliage, as it is subject to the attack of red spider.—*Pax Mag. Bot.*

ORCHIDACEÆ.—*Gynandria Monandria.*

Maxillaria (*Lycaste*) *macrobulbon.* Sent from Sierra Nevada, Santa Martha, by our collector, Mr. Purdie, to the Royal Gardens of Kew. It has some characters in common with *M. aromatica,* and with *M. cruenta.* From the former it may be known by the larger size in every part of the plant, by the scentless flowers, and different shape of the lip; from the latter by its smaller, differently coloured flowers, by the very dissimilar labellum, and the absence of the crimson blotch on its under side.—*Bot. Mag.* 4228.

Oncidium lacerum. Among the species of Oncidium, to which the general term of chive-leaved may be given, and the type of which is *O. cebolleta:* this, and *O. longifolium* are the handsomest. It agrees with that species in the length of its leaves, which are as much as two feet, but it differs in having a smaller panicle, sharp column-wings, very narrow falcate side lobes on the lip, and a single-ridged tubercle at the base of that organ, placed at right angles to a flat, somewhat concave, swelling, which almost connects the side lobes. This species is found wild in Panama, whence it was sent to Messrs. Loddiges, with whom it flowered in April, 1844.—*Bot. Reg.* 27-46.

CALENDAR FOR JUNE.

Although not exactly destructive in a flower garden, still the presence of wasps in or about any part of the pleasure ground is of course not to be tolerated. To judge by the quantities of large or queen wasps which were about early in the season, the number of nests which will be found in the summer and autumn will be unusually numerous. The only consideration, then, is the best way to destroy them. Many methods have been recommended, but perhaps none is more used than the old squib of sulphur, with sufficient gunpowder mixed with it to make it burn. A tolerably sized squib of this mixture is sufficient to kill or stupify the largest nest of wasps; and, as the nest should be dug out directly after the fumes of the sulphur have acted on the wasps, and taken home, or mashed upon the spot, to stupify them is quite sufficient. The grubs are greedily eaten by fish, and the nests may therefore be broken up and thrown into the ponds or brooks.

A troublesome tribe, especially among pelargoniums in the houses, are the bees—one, if not all the species. They attack the flower-bud before it expands, cutting a round hole through the petals, no doubt to reach the nectar secreted in the tube of the flower, and thus entirely spoil the bloom. They should be closely guarded against, especially where flowers are wanted for hybridizing, which may thus be spoilt long before the pollen can be applied in the ordinary way.

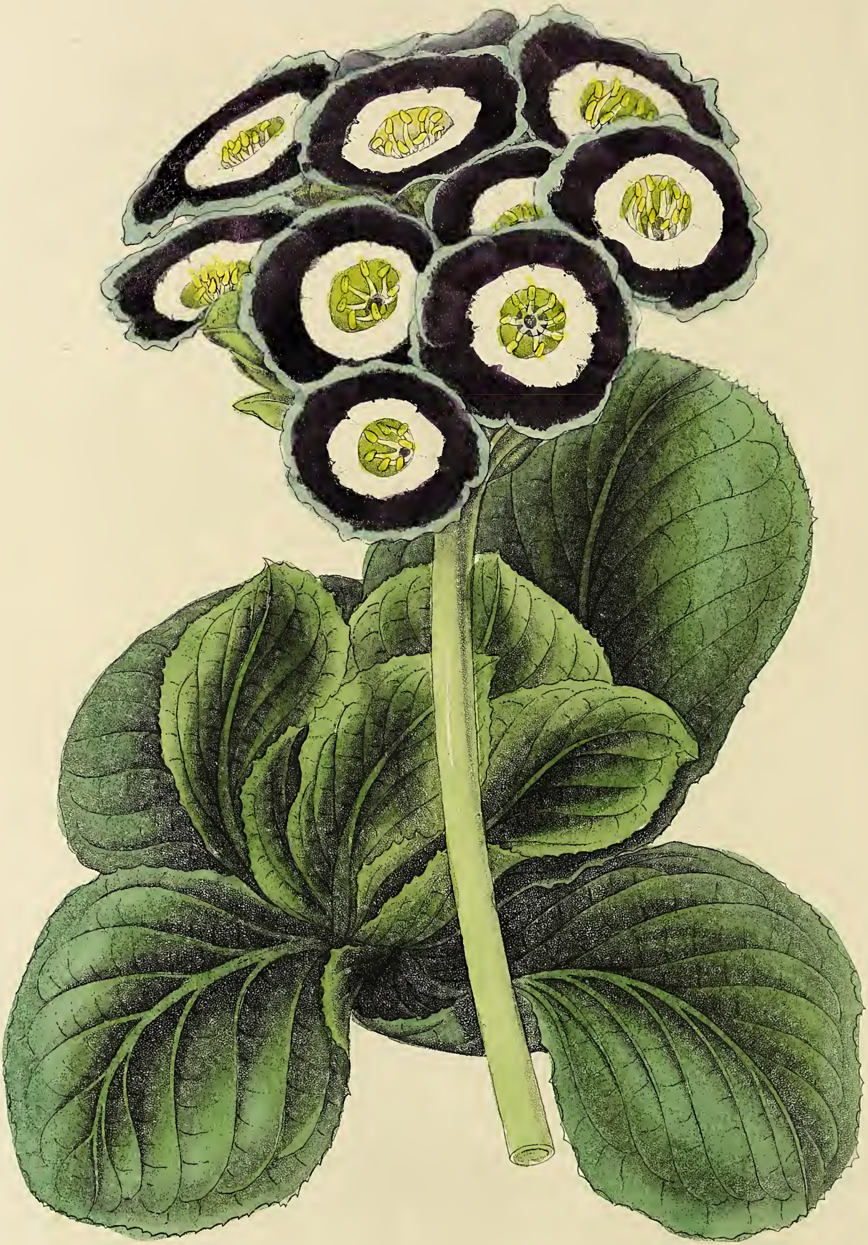
The flower garden ought to be entirely filled with its permanent summer plants early in the month, and then the work in this department becomes very routine in its character. Directly they are turned out, peg down all plants that will bear it, as petunias, verbenas, &c. This operation is beneficial in two ways, enabling the plants to cover the beds in the shortest time, and also protecting them from being blown about by the wind. It further keeps them on the heated ground, so that they can grow quicker than if growing away from it. Propagating never entirely ceases where much bedding out has to be provided for, but immediately the various plants have grown sufficiently to furnish cuttings, this operation should be commenced in earnest, and carried on until as large a stock of whatever may be required for the next season is obtained, as there may be room to protect properly during the winter. Plants struck in spring are generally too small to make a display in early summer.

There are many old plants which appear to be a good deal neglected, although valuable for flower-garden decoration. *Tagetes tenuifolia* has been recently described, and, as an annual, has few to rival it in durability. *Gorteria ringens* and *Gazania rigens* are two old Cape of Good Hope plants, which afford a fine display from June until the frost arrives. The double Nasturtiums, both the yellow and orange-coloured, are valuable, especially on light sandy soils, where some difficulty occurs in keeping up a display in dry summers. *Saponaria ocymoides* is a little beauty, beginning to flower as early as the middle of May, and lasting a considerable time. *Cheiranthus ochrolencus* commences to flower as early, or earlier, than the last, and continues for some time. It is desirable, on account of its dwarf, compact habit, and the clear pale yellow colour of its early flowers. This list might be easily extended; and as variety adds a considerable charm to all pleasures, the enjoyment of the flower garden may be considerably enhanced by varying the plants used for its decoration.

The greenhouse plants must be carefully staked and tied as they advance in growth; but not a stick more than is absolutely necesssary should be used. Nothing can be in worse taste than the way in which some plants are exhibited; it is difficult to guess whether the live or dead wood is intended for observation. Stop in all plants that are required dwarf and shrubby; and be very careful in the application of water, as many hard-wooded plants, especially heaths, if allowed to become dry, will never recover.

In the stove the application of moisture is also of first consequence, as no plants can withstand the temperature there kept up while in a growing state, if not very liberally supplied with water. Any plants which have completed their growth, especially Orchidaceæ, should be removed to an intermediate house to harden off and rest.

D. M.



DICKSON'S DUKE OF SUSSEX.

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THE AURICULA.

WITH AN ENGRAVING OF DICKSON'S DUKE OF SUSSEX.

In the production of seedling varieties, whether of established favorites of the florist, or of other and more recent plants, there are always so many little cares, with their concomitant apprehensions, in every stage of their rearing, as to deter many from the attempt; but to the real enthusiast, the true florist, all these fears, and the thousand actual disappointments which uniformly occur, are but so many exciting causes to assiduity, giving an additional zest to the pursuit, and increasing his determination to proceed until some really good thing results. As a natural consequence, this untiring perseverance, when controlled and directed by even a moderate share of judgment, cannot fail to reap its reward at some period, though it be distant, when all the troubles and vexations of years of unrequited labour are in a moment absorbed and forgotten in the admiration of some newly developed form.

In no class of plants is this unwearied attachment more requisite than with the Auricula, with which the chances are not greater than one in a thousand; but, on the other hand, few other flowers possess the lasting value of these, for if they are difficult to obtain it necessarily follows, that once established, they should maintain their position, inasmuch as there are so few rivals.

We proceed to the details of the operation, previously remarking, that unlike most other florists' flowers, little dependence can be placed on the parentage of the Auricula. There is a great paucity of white-edged varieties, which no art seems capable of removing, for though seed may be carefully saved from flowers of that class, grown alone, still the product is more than likely to be distinguished by the opposite character; deep green, and gray edges, and even selfs, being produced from one and the same pod of seed. To improve the probability of a valuable result, the seed of thoroughly good flowers only should be saved, as it would be a retrograde movement to trust to second or third-rate varieties for the production of seedlings, which, unless perfect, are absolutely worthless. About the middle of July the seed will be found ripe, it should then be gathered when quite dry, and put away in paper bags, without shelling, until the following February. We prefer this early period for sowing, for though it entails a little additional trouble while the plants are young, it also gives them an opportunity of becoming well established in the course of summer, and therefore in a more fitting state to go through the winter safely. About the middle of February, then, pots, or, what is better, flat wide-mouthed pans, after being well drained, should be filled to the top with fine, light, rich earth, such as leaf-mould and loam, having a good proportion of sand mixed with it, to preserve its porosity and enable the roots to penetrate freely. The surface should be pressed down even and firmly, and the seed distributed equally over it; a slight covering of fine sand may then be strewed over it, and the earth receive a gentle watering: a gentle bottom heat will greatly assist the germination of the seed, but, if this cannot be afforded, a piece of flat glass may be laid over the pan, and a warm sunny shelf selected for it in the greenhouse. It indeed sometimes happens that no better accommodation for raising the seed is at hand than the frame in which the mature plants have been wintered: in this case, it is perhaps better to defer sowing till the end of March; in either case the soil must be kept constantly and moderately moist. In May or June the plants will be fit for transplanting; they may then be put, the largest singly into small pots, and the others at a distance of an inch and a half from each other round the margin of a larger pot; from this time till the following October they will require to be constantly moist, and shaded from strong light, occasionally pressing the soil firmly about the base of their stems, to keep them in place, and cover the young roots with soil as they are protruded. Through the winter they do not require any other attention than such as is commonly given to the older plants, an occasional watering, according to the state of the atmosphere, protection from frost, and to be kept quite clean of insects and decayed leaves. As many of them may be expected to bloom in the following spring, it is advisable to separate the strongest of those which were placed together in large pots, and shift them singly into others agreeing with their respective sizes; this should be done early in January, before the plants begin to move, that they may have all the benefit of the new soil; and those which are not so treated, should be surface-dressed with rich compost, to throw as much strength as possible into the forthcoming flowers. The soil we prefer for auriculas, whether old or young, is a mixture of equal parts of loam, decayed leaf-mould, rotten cow-dung, and silver sand; this will always grow them in a healthy manner, and no danger need be apprehended should one part of the materials happen to predominate over the others. A deep rich colour is imparted to the green of some varieties by the use of night-soil and peat; a double quantity of the latter should always be mixed, and the former must be thoroughly decomposed, or it is highly mischievous. Decayed horse-dung or sugar-scum may be added, as an additional proportion to the above, for the top-dressing, which should be given to all auriculas at the beginning of March.

Our present illustration is another seedling from the stock of that veteran raiser, Mr. James Dickson, of Acre-lane, Brixton; it was originated from seed of Dickson's Earl Grey, a robust and strong growing kind, crossed with Dickson's Unique, and gained the first prize as a seedling of merit, at one of the Metropolitan Society's meetings, and another award of the same kind from the Royal South London Floricultural Society. Like its parents, it is a fine, strong, healthy growing variety, but sparing of increase. To speak of the flowers is unnecessary, as our figure will convey the best idea of their properties and general beauty. Suffice it to say, in the opinion of many of our best judges, the Duke of Sussex is the best gray-edged auricula in cultivation.

EDITOR.

CLAPHAM GARDENERS' ASSOCIATION.

THE ERICA, BY MR. E. F. FAIRBAIRN.

THE genus Erica boasts at the present time of from 800 to 1000 distinct species and varieties, all more or less interesting; but there are some species which deserve our highest admiration, which I will call your attention to presently.

The propagation of the Erica is effected by seeds and cuttings, but the more general rule is by the latter mode, for perpetuating the varieties. As with the Fuchsia so with the Erica, I shall say very little about propagating; in the first place, because I know but little, and in the second, because I do not think it would interest you. Suffice it then to mention, the cuttings are taken (as Mr. Dawson used to say) when you can get them to suit you; trim them with a pair of sharp-pointed scissors, and cut them horizontally at a joint, insert them in pure silver sand, and cover them with a bell glass; after you have watered them place the pot of cuttings in a shaded situation. The time they will require in striking entirely depends on the variety, for some sorts will strike in a month, while others take eighteen months; some sorts like a cool situation, while others like a moderately warm one, during the striking process; when they appear to grow, the striking-glass must be elevated about half an inch from the surface, so as to allow them a little air previously to taking the glass entirely off, when in about three weeks the glass may be entirely removed; and, soon after, the young plants may be potted off in store pots, that is, four or five plants in a sixty-sized pot; if this is done in the spring of the year, they will require single pots about July, they may then be potted, and kept in a close frame for a week, and shaded during the hot sun; it would be as well to have the frame turned to face the north at that season of the year. After they have been potted off a month, they should have all the air that can be given, but not so as to allow the cold cutting winds to injure them, which is the true cause of so many young heaths being lost. About the second week in October is a good time to remove them to their winter quarters, which should be on the top shelf of a cold greenhouse, taking care to give the air on all opportunities. The only thing to be done through the winter is to tie them to neat sticks, and keep the surface of the soil free from moss and scum, which collects by frequent watering. About March or April this situation will be getting too hot, they must then be removed to a cold frame, covered with mats at night, and given plenty of air in the day. This will be found a good time for shifting either small or large plants, provided the latter are not too forward for bloom. The plants that have been in sixty-sized pots all the winter may be shifted into forty-eight sized, and those that have been in forty-eight may have twenty-four sized; that is, if you want to grow them free for specimen plants.

I will here just remark, that although I am no advocate for the one-shift system, as it is termed, after a plant is once well established, I have no objection to shifting it into a pot two sizes larger than that in which it has been growing, provided the plant is in good health and it being the growing season. There is one principal operation indispensable to the Erica, if fine specimens are desired, and that is, the formation of the plant in its young state; this is something like the foundation of a house to the well-being of the plant, for unless this be attended to while young, the plant will assume a naked irregular appearance when old.

I will now proceed to place the Heaths in two classes: the first, the soft-wooded or free growing kinds; and the latter, the hard-wooded or comparatively slow growing kinds.

As regards the former, they require quite different treatment to the latter, inasmuch as they require the knife; that is to say, most of the free growing heaths require to be cut down after blooming, to keep them bushy, for if allowed to go on year after year without this process being observed, they will become poor, naked specimens, only fit for the rubbish heap; while, if judiciously pruned at proper seasons, you may have such as Erica Willmoriana, hybrida, &c. in four years, four feet high and four feet through.

With respect to the hard-wooded kinds, such as Hartnellii, Massonii, Aristata major, &c., if they are managed properly they never ought to lose a leaf, much less a shoot or branch. In order to arrive at this state of perfection with this class of heaths, they should not be kept in a higher temperature, in winter, than 50° at most, and never be watered at any other time than early in the morning, so that the plants may dry off before night. Watering heaths at night is one of the causes of mildew; through this baneful practice in winter many valuable plants are entirely lost. I will here observe, that the best remedy for this disease is plenty of air and a complete smothering of dry brown sulphur. Another cause of mildew is excessive rain in autumn, which ultimately brings on a more destructive fungus than mildew, and the only remedy I know is to remove the plants to the driest part of a cold greenhouse. The fungus I allude to is a small yellow spot on the back of the foliage, which will destroy every leaf on the plant, supposing it to continue in a damp, humid atmosphere.

The free growing Ericas delight to be out in the open air, on a cool bottom, during the summer months, but the hard-wooded species and varieties, in my opinion, ought never to be out for any length of time, unless in a very sheltered situation; but, at the same time, to let them remain in a greenhouse during the three hot months of June, July, and August would be absurd.

I would recommend, from experience, that small plants of this class be kept in frames all the summer, but then the frames should be turned to the north, and elevated on pots or bricks, so as to allow a current of free air to pass under the frame to the plants; by this method you can put on the lights to keep the heavy rains from them, which are very injurious, and likewise can shade them with mats, or, what is still better, canvass. Although I recommend the exclusion of heavy rains, I consider they enjoy a refreshing shower the same as other plants, but the before-mentioned plan is to guard against a wet season. Perhaps some of you will say, how can we do this with our large show-plants, which take two men to lift them? In this case, erect a temporary structure, with feather-edged boards for the sides, and oiled calico for the roof, only leaving room for the air to enter at the bottom. In fine weather, of course, I need not tell you to always have the roof off, or, as an improvement for the sides, have it made with hinges, so as to let it down at pleasure, and fix it with a button.

In the next place, I will say a few words respecting the soil, which is of course one of the principal agents. I have never found better, than the best that is procured from Shirley or Addington Parks, although there is very good at Wimbledon Common. In selecting it, be particular in choosing that nearest the surface, and the nearer it approaches the colour of Scotch snuff the better, particularly for young plants; this light soil will require to be incorporated with a great portion of silver sand, that from Reigate I prefer, being very pure and sharp; at a rough calculation I should say a peck of sand to a barrowful of peat. I prefer sifting the soil for small plants, but never sift it for heavy potting, nor use quite so much silver sand. I would also particularly recommend, in addition to crocks for drainage, some pieces of charcoal, the size of the pieces must be regulated according to the size of the pots; for instance, pieces the size of beans for small pots, say forty-eights, and of the size of hens' eggs for very large pots. I also recommend for the drainage of very large pots, that small thumb-pots be inverted at the bottom, and the crevices filled up with broken pots and charcoal, and over that a thin layer of coarse siftings. I would recommend, also, that large pieces of broken crocks, and flint or free-stone, be introduced every five or six inches, as the large pot is being filled up with soil. In the process of potting, be careful to use the soil in a moist state, so that the water will penetrate through. As soon as the process of potting is completed, water should be freely applied, for if the soil is once allowed to get dry it is difficult for the water to penetrate to the bottom. If you can make it convenient, it will be well to keep the plants rather close for a few days, so as to allow them to get re-established after the check they have received in shifting. As the genus Erica is in flower, more or less, all the year round, I shall make a few observations on large specimen plants. For illustration, those splendid varieties that are in bloom now will shortly be declining, and most of the flowers stripped from them, then August will be a good time for repotting, as it will enable them to establish themselves by the winter, and produce strong trusses of bloom next year. Those that bloom in July or August may be potted in March, it will greatly facilitate their blooming; but, as a general rule, never pot them either just before they bloom, or when they are in bloom, or just after they have done blooming; but at any other time than in the dreary months of winter; I have frequently observed fine specimens go off by being potted at these critical times, for they are then quite enough exhausted, without the check of repotting. I would here intimate the great encouragement offered to gardeners in the hybridization of the Erica. In this pursuit every endeavour should be used to combine the most opposite characters; as, for instance, a fine bright yellow Vestita, as pure as Cavendishii, would be highly desirable, and similar novelties would undoubtedly be highly prized. Gardeners are beginning to look to this important process with the Erica, but it is only lately that it has received the attention it deserves, and collections of Ericas would not have been so rich had it not been for the untiring perseverance of the late Mr. Rollisson of Tooting, Mr. Pamplin of Hornsey, Mr. Willson of Chislehurst, and a few others.

Now I am commenting on seedling Ericas, I would beg to caution against sowing the seed that is imported from the Cape, as not being worth the trouble you bestow on it. The seed is collected wholesale by the natives, and sold retail by a person at Cape Town, without any respect to the correctness of the sorts; and they are, moreover, those kinds that seed very freely, and are totally worthless in this country, except in very large collections. I would, therefore, procure a few of the best kinds from a nurseryman, and try your fortune by saving the seed yourself. Erica seed being very small, care must be taken in raising it. The best plan I have found is to sow the seed in February, on the surface of silver sand, and sprinkle a small quantity of dry sand on the surface after the seed is sown; then water it freely, to settle the seed, and place a flat piece of glass on the top of the pot, then put a covering of moss on the glass, to keep the sun from scorching the seedlings, and, as they germinate, place the pot in a moderately warm house. When the seedlings are strong enough, prick them out in very sandy peat sifted very fine, place a bell-glass over them till they get strong enough to bear the sun, and then take the glass from them; treating them the same way as with plants reared from cuttings.

I will now give you a list of a few of the best Ericas, in both classes, that I am acquainted with. I will here observe I could enumerate between 400 and 500 species and varieties; but as I am taking up much of your valuable time, I will confine myself to about fifty, which I consider indispensable to a gentleman's establishment.

Ventricosa Coccinea Minor
Stellata
Superba
Alba
Bothwelliana
Prægnans Coccinea

Vestita Alba
Coccinea
Rosea
Erica Tricolor Superba
Willsonii
Elegans
Dumosa

Erica Shannonii
    Obbata
    Mundula
    Dilecta
    Aristata Major
        Vittata
    Massonii
    Favoides Elegans
    Metulæflora bicolor
    Parmentieria Rosea
    Fastigiata Lutescens
    Mirabilis
    Intermedia
    Hybrida
    Propendens
    Bergiana
    Grandinosa
    Willmoriana
    Linnæa
    Linnæoides
    Hyemalis
    Cavendishii
    Depressa
    Ampullacea
Erica Ampullacea Vittata
        Rubra
    Retorta Major
    Lawrenceana
    Hendersonii
    Vernix Ovata
        Coccinea
    Templea
    Hartnellii
    Perspicua Nana
    Daphneoides
    Eweriana Superba
    Inflata Alba
        Rubra
    Irbyana
    Eximia
    Macnabiana
    Tortiliflora
    Humeana
    Hibbertia
    Savilliana
    Rollissonii
    Clowesiana

AMARYLLIS AND ALLIED GENERA.

In the extensive group of bulbous-rooted plants included in the natural order Amaryllidaceæ there are many deserving favorites, which receive the attention they well merit; and at the same time there are many others, either unknown from their scarcity, or neglected through some supposed difficulty in their cultivation. My object in forwarding this paper is to draw attention to the family in general, to point out its capabilities, and to explain a system of culture which has been attended with the happiest results. But the plants to be treated of being, as I before hinted, rather numerous, I must beg your indulgence over another month, as it is impossible to condense all that should be said of them into the limits of a single paper. And, first, we will endeavour to dispose of the presumed difficulty said to exist in their management. This relates, of course, to their blooming; for it must be admitted that nothing is easier to *grow* than are the plants of this order. Now was it said to any modern cultivator of the school which produces the splendid objects seen at our principal exhibitions, *you* cannot grow and flower this or that plant, because it is said to be difficult? it is more than probable that he would altogether disdain a reply, but would at once set to work, and the next season would, beyond doubt, see the result, in a magnificent specimen produced solely to vindicate the attack on capacity and professional character. And could this feeling once be aroused, there would remain but very little of the now-talked of difficulty. A very short time would see it removed before the pressure of skill and perseverance; and I firmly believe it is only inducement that is wanted to make these plants, what I am certain they are calculated to become, esteemed aids in the ornament of every collection. We can grow and flower many forms from climates more unknown to us, and far more peculiar than is that from whence these are derived—ah! and in richer luxuriance than was the case when the same individuals were nurtured by even Nature herself. Why, then, should these magnificent objects be so neglected? It can only be for want of inducement. They have not been brought properly under the notice of cultivators, but left to struggle on in an obscure existence, occasionally surprising their attendants with a display as unexpected as it was brilliant, and again relapsing into a state of torpor or retrogression, for want of the proper stimulative course necessary and natural to them as to other plants. What shall we say of those who re-pot their Amaryllis once in three or four years, or continue them in the same situation from one year to another? Since the days of Sweet, no one seems to have given the order any attention; and he wrote when the science of horticulture was yet in its infancy, and, therefore, amid the multiplicity of claims which have arisen, those of the tribe I now advocate were unheeded, and have become forgotten.

To approach the culture of these plants with a prospect of success in its continuance, it is essential that something be known of their natural positions; their habits as affects climate, soil, situation, and other particulars of the same nature, must be sought for and attended to. To say they come from the Cape of Good Hope, the interior of Africa, or the Brazils, is not enough. With every importation the utmost particulars should be collected and preserved, and everything denoting the character of the locality from whence they are derived should be scrupulously studied and imitated in practice as nearly as circumstances will permit. The three countries named may be taken as the basis for as many divisions of the order in a cultural sense, as on their several peculiarities of climate must depend much that will affect the well-doing of the plants in cultivation ; and in exact proportion as they are imitated, or left unnoticed, may the results be expected to terminate. The species derived from the immediate vicinity of the Cape of Good Hope are perhaps the easiest of the divisions to manage, as from the proximity of their habitats to the sea, they are used to a comparatively low temperature in the winter season, and are, therefore, with us nearly, and in instances obtained from elevated districts, quite hardy. In cultivation, we find them taking a place among what are called frame plants ; that is, such as bear all the vicissitudes of our climate, except actual frost. The greatest peculiarity affecting plants of this kind is their natural love of sandy soil : the table land at the Cape, from whence the principal part are brought, is composed almost entirely of pure sand, the only addition (except in some few instances) being merely the debris of decaying vegetable matter, which does not extend to an appreciable degree in the composition of most of the soil over a very great range of the country. Yet in this apparently barren kind of earth many most beautiful objects spring up among the low brushwood, or under shrubs, and even on the exposed plains. Ixias, Sparaxis, Satyriums, Amaryllis and others, in turns display their lovely blossoms, and again retire to the protecting bosom of their sandy earth.

As most important in their culture, it should be remarked that the flowers of these plants are developed before the greatest heat of the season occurs; they have grown, and flowered, and are again sinking into a state of rest, when the meridian influence of the sun overtakes them, perfectly maturing their several new parts, and inducing a complete state of dormancy just previous to the cold or winter season. It is no unfrequent thing for the thermometer to mark 90° of heat in the shade during this period of intense sun-heat, and that the loose sand of the country should become proportionably hot will be readily conceived; and in this lies most of the art of cultivating the plants of that part of the world. Unless a proper degree of maturity is imparted to the bulbs, after the growing season, it is useless to hope for flowers; their rudimental natures are not present, and, therefore, can never be seen in the perfect form desired. How contrary to this is the usual mode of management, where the pots are removed to a back shed, or some such place, cool and shaded, instead of receiving the ninety or hundred degrees of sun-heat essential to their perfection!

LUSOR.

GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

DISTRICHOTOMUS. A continued dividing of the leaves or branches in twos and threes.

DIURNAL. Lasting but one day, or repeated daily.

DIVARICATE. Branched in an irregular, straggling manner.

DIVERGING. Joined at the base, but separately inclining from each other at the opposite extremity.

DODRANS. A measure of about nine inches, a span.

DOLABRIFORM. Shaped like an axe.

DORSAL. Proceeding from the back of any organ.

DRUPE. A fruit composed of a fleshy succulent exterior, surrounding a hard stone, as in the peach.

DRUPEL. A diminutive of the above, usually applied when the drupes are in an aggregate condition. Examples are found in the blackberry, &c.

DUMETOSUS. Shaped liked a bush,

DUPLEX. Double.

DESCRIPTIVE LIST OF NEW PLANTS.

Primulaceæ.—*Pentandria Monogynia.*

Primula involucrata. This is a neat and very desirable sweet-scented, little hardy alpine perennial, which grows freely in a soil composed of sandy loam and leaf-mould. It attains a height of six inches, flowers from March to May, and sometimes a second time during the growing season; the flowers are pure white. It was raised in the garden of the Horticultural Society from seeds from the north of India, presented by Captain W. Munro, in April, 1845. It was said to have been found in company with Cyananthus lobatus, in the neighbourhood of water, at an elevation of 11,500 feet above the sea.—*Bot. Reg.* 31-46.

Saxifragaceæ.—*Decandria Digynia.*

Saxifraga thysanodes. A pretty, robust, hardy, perennial, growing not more than six or eight inches in height, and flowering in April. It has rather large, hirsute, crenated leaves, and compact, nearly simple, inflorescence. The roots were transmitted last year from India to the Horticultural Society.—*Bot. Reg.* 33-46.

Onagrarieæ.—*Octandria Monogynia.*

Fuchsia macrantha. If this be not the most brilliantly-coloured of Fuchsias, it certainly can boast the largest flowers, and it bears them more copiously than any other species. It is, moreover, quite an undescribed species—first, however, found by Mr. Mathews, climbing on trees in lofty mountains at Andimarca, Peru, and next by Mr. Veitch's collector, Mr. W. Lobb, in woods near Chasula, Colombia, at an elevation of 5000 feet above the sea. The absence of petals in the flower of our plant, and the imperfect descriptions of *F. apetala,* would at first lead to the supposition that it was that rare and splendid species; but if the two plants be compared, or if *F. macrantha* be compared with Ruiz and Pavon's figure of *F. apetala,* the differences will be very apparent. It is quite a hardy greenhouse species, and promises to succeed well on the open border in the summer months. The flowers are pendulous, from four to five inches long, of a fine rose-red colour, the limb four-cleft; segments ovate, moderately spreading, slightly tipped with green, corolla none. As the season advances the colour becomes more brilliant, and then the effect, with the numerous flowers quite concealing the stem and branches, is peculiarly striking. The plant seems scarcely to exceed two feet in height, and it is so free a flowerer that blossoms appear when the plant is only six inches high.—*Bot. Mag.* 4233.

Orchidaceæ.—*Gynandria Monandria.*

Maxillaria Warreana. This is a very distinct and very lovely species of Maxillaria, first detected, as it would appear, in Brazil, at least it was, according to Mr. Loddiges, cultivated there by Mr. Warre, after whom it is named. Our plants were sent from Santa Martha, New Grenada, by our collector, Mr. Purdie, and flowered in the Royal Gardens, and at Sion, in August 1845. The delicate and almost snowy or yellow white of the ground of the flowers is beautifully contrasted with the rich purple of the inside of the lip. The flowers, about a dozen in number, are borne on an erect spike springing from the base of the new growth, the latter rising from a cormus or short rootstock, and ultimately forming a pseudo-bulb about three inches in length. The leaves are long, attenuated at the base, and gradually expanding into a lanceolate, acuminated, striated, and plaited blade.—*Bot. Mag.* 4235.

Ansellia Africana. Two specimens of this fine epiphyte have been introduced by Messrs. Loddiges and the Rev. John Clowes, from the neighbourhood of Fernando Po, and that belonging to the first-named gentleman produced its flowers in February last. It has a slender, many-jointed, bulbous stem, about two feet long, having at the upper end many stiff, plaited, lanceolate, five-ribbed leaves, and a terminal spike of flowers as large as those of *Vanda Roxburghii,* with dark purple spots on a greenish-yellow ground. It is, indeed, a noble thing; for although its flowers have somewhat the colour and appearance of a large Cymbid, yet their panicled disposition, and the entirely different habit of the plant, render it much more showy than any Cymbid known to us. The auricles at the base of the column, the four pollen masses, and the very narrow gland fining away to each side, sufficiently distinguish it.—*Bot. Reg.* 30-46.

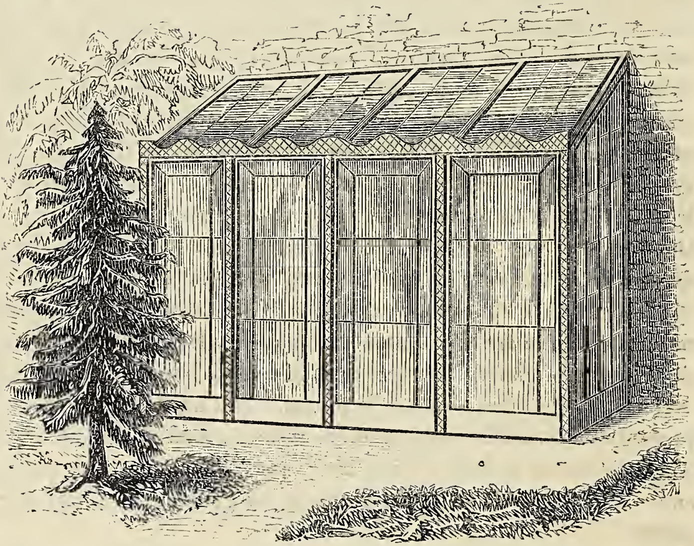
Odontoglossum membranaceum. This delicious species—for so it deserves to be called, on account of its agreeable odour and delicate flowers—this delicious species is quite like *O. Cervantesii* in general appearance, and may possibly be a mere variety of it. It differs, however, in the following respects: the flowers are whiter and rather larger, and the lip is spotted at the base. Its petals are much blunted. Its lip is very deeply heart-shaped, and quite rounded at the point. The two front teeth of the lip are shorter and less hairy, and the concavity at the base of the lip has a much smaller central tubercle. In other respects the two plants may be regarded as being identical. They are both Mexican, and may be regarded as among the finest species of that country.—*Bot. Reg.* 34-46.

THE GREENHOUSE.

The rapidly increasing taste for the pure, intellectual, and tranquillizing pleasures derivable from the pursuit of horticulture should be marked in its progress, and met by a corresponding development of available means for its enjoyment, ready and approachable; the removal of supposed difficulties, which ever present themselves to the imagination of a beginner; and the free, full, and unrestrained communion of ideas which the experienced may supply with so much advantage to the uninitiated—a degree of duty imposing itself on all connected with the science, to keep alive the existing interest, and to make its future advances extended, beneficial, and permanent. With this view of the case, we have determined on an occasional enlargement of our space, that we may have increased opportunity of contributing to this desired end; and by treating the subject in detail, be enabled to place it in a thoroughly comprehensible view, with the advantage of being easily referred to.

The subject of the present paper is one which, let its size or position be what it may, is perhaps the most important, because most generally useful, of all the varied structures which legitimately belong to a garden. Indeed it may be questioned if the latter can be considered complete, or kept in the order indispensable in these days of perfect finish, without the advantage of some such convenience; and we venture to predict the time is not far distant when every place exceeding a single rod of ground will have at least its glazed pit for the preservation of bedding plants through the winter, and the growth of cucumbers or melons, or the purposes of propagation in summer. We intend, therefore, to enter as minutely as possible into every circumstance connected with it, that it is possible to explain orally. The site, form, manner of erection, heating, expense, besides the management proper at the different seasons of our variable clime, are all subjects of consequence in connexion with the greenhouse, and, therefore, require particular notice. Perhaps no garden structure admits of so much modification, or can be applied to so many useful purposes as the greenhouse. In the hands of a skilful cultivator it at one season contains an assembly of all the beauty which the regions of Flora can supply, besides being the storehouse from whence may emanate the pride and loveliness of the parterre at a more genial season; when stripped of one set of occupants, it is again rendered the point of attraction by the introduction of those delicate "natives of a sunny sky," which refuse to unfold their graceful charms at a ruder season. Or should the taste of the proprietor incline to a more permanent class, by judicious selection it is still, at all times, equally interesting; and with no other additional convenience than this house and, perhaps, a small pit, even celebrity may be obtained. The situation of a greenhouse is too often dependent on contingencies beyond control to admit of choice; and, did even the opposite rule prevail, we do not believe it to be of the consequence which is often unduly attached to it? With an efficient heating apparatus and a proper selection of plants, success may be attained wherever the sun can be had to shine for an hour. On the latter consideration much must, of course, depend, as it would be equally as unreasonable to expect cactaceous plants to succeed without sunshine, as to imagine camellias and similar objects will thrive in a full flood of bright light. Of course it is preferable to have the command of this and all other appliances, because their power may be controlled, though their absence cannot be supplied. But we make the remark that those who are really anxious to enjoy the pleasures of a greenhouse may not be deterred for such reasons, and shall always be happy to advise under any circumstances, believing it quite practicable to grow an interesting and beautiful assemblage of plants, even where the sun is never seen. Supposing, however, that all affecting circumstances combine to admit a perfectly unbiassed choice, we should greatly prefer for either a mixed collection, or one composed of New Holland or Cape plants, a situation which will allow the house to stand east and west, a span-roofed erection, standing with its gables or ends facing to the north and south, being, in our opinion, decidedly preferable, above all other forms, for the culture of the majority of greenhouse plants. The more elevated and dry the spot, the greater will be the chances in favour of the cultivator; and unless this is naturally secured, it should always be regarded as the primary step to thoroughly drain it and the surrounding space. An almost universal custom prevails of attaching an erection of this kind to the windows of the drawing-room, and nothing that we are acquainted with appears to lend such an exquisite air of refined elegance, as is imparted by the presence of even a few well-grown plants in bloom. We have elsewhere expressed our favorable opinion of the practice, and of the pleasurable impression it creates; and now proceed to notice this particular structure, before entering upon the general subject of the paper.

The intention of an addition of the kind is evidently to increase the embellishments of the dwelling-house, both externally and internally. For the former purpose it is essential, for obvious reasons, that it partake, in general outline at least, of the proportions, appearance, or style of the dwelling, and, to possess a pleasing aspect in the interior, should be formed with every regard to lightness that is consistent with the requisite strength. The accompanying sketch will convey some idea of an erection suitable for the garden front of a modern villa. The size of it is fourteen feet long, seven feet wide, and of sufficient height to reach above the windows, eight feet; the sashes of the roof, as may be the case in all structures of the kind, are fixed, which allows of their being made of smaller timbers, and a similar advantage is obtained in the rafters, which in this do not show more than an inch and a half in thickness in the inside. Ample opportunity for ventilation is secured by the opening of the front sashes, and those in the top of the ends. The front is formed entirely of French casements opening to the floor, and allowing an easy egress to the walks of the garden; those at either end fall back against the sashes there, while those in the middle fold one over the other.

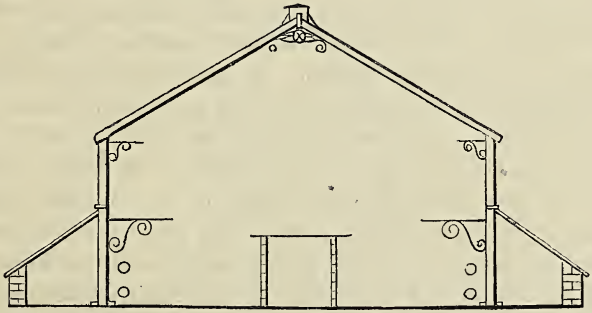


The stages are arranged so as not to obstruct the passage, by leaving a path directly through the centre, and this places the plants in a position to be seen to the utmost advantage from the rooms, without excluding the light from them. Small shelves and detached brackets carry, in the one case, smaller plants, and, in the other, choice specimens, that are desired to be viewed separately. The floor is formed of slate slabs, beneath which, at the front, the heating pipes are carried, so as to be unobserved. The entire cost of this erection does not exceed twenty-five pounds.

Should it happen that the rooms to which it is desired to attach the conservatory are above the level of the garden, the floor must stand on an arch of bricks; and from the front the passage to the garden may be made by a flight of steps, either of figured cast-iron or stone, as may be preferred, or seems most in accordance with the size or style of the building. Such a one should be regarded as more particularly intended for the reception of plants in bloom, and, from its position, will most likely come under the immediate surveillance of the fairer portion of the family. Indeed, it is just the place a lady would select in which to collect her favorites, and there enjoy their fragrance and beauty.

From this we pass to the greenhouse of the gardener, where may be grown and brought to perfection any and all the inhabitants of the temperate regions of the earth. A thoroughly good, practically useful greenhouse is a constant source of pleasure, and indeed profit, to the possessor; but unfortunately, in very many instances, either from erroneous plans, or an extravagant and needless waste of material, it is made as nearly the opposite as though such had been the intention of those who contrived it. Exorbitant charges and bad construction have done more injury to gardeners and gardening than may be readily conceived. The house we should prefer for general purposes is one which, as before mentioned, has a span-roof, standing east and west, in an elevated dry situation, sheltered somewhat from the north-east wind, but by no means surrounded with trees; and to explain our ideas more fully, and render them perfectly tangible, we shall again call in the aid of the engraver. The sectional figure given below represents a house of considerable size, sufficient for the growth of a large collection of plants. Its length is forty feet, entire breadth twenty, and the height to the ridge plate ten feet. The roof in this is also a fixture—that is, the sashes are made to remain stationary; the advantages of which are manifold. In the first place, lighter material is sufficient, as all the wear and tear is removed; the frames and glass therefore last longer, requiring little or no repairs for many years, beyond the annual coat of paint which these places should always receive. A considerable amount of labour is also saved, and the general appearance of the erection greatly improved; the ventilation being effected in this case by an ingenious contrivance, invented by Mr. Farmer, greenhouse-builder, Newington Causeway. It is thus managed: a space is left open between the top rail of the sashes and the ridge plate on either side, for the entire length of the house; over this, at a slight elevation outside, is placed a protection board, to throw off rain, &c., while descending from it to the rail of the lights is a valve-board on either side; these boards, by being hung on pivots, are easily drawn up by means of a cord and pulley, and thus egress for heated air is instantly obtained in the most proper place for ensuring a thorough yet moderate current of fresh air from the open lights in front. Along the sides of this house are shown dwarf pits, the most appropriate receptacles for small plants, and here an important improvement presents itself. Instead of wasting nearly half the entire cost of the erection in useless brick walls, it is proposed to support the house by continuing the upright timbers through the sill down to the ground level, where they enter a plate laid on a footing of bricks. These stanchions will be found equally as secure and lasting as a nine-inch wall; and in front of them, proceeding from the under side of the sill, are the lights, which project about three feet to form the pits before spoken of. An interior connexion existing between them and the main body of the house, beneath the front shelves, in consequence of there being no wall, the apparatus intended to supply the required heat to the house, by occupying its usual position, will at the same time, and at no greater expense, impart a sufficient warmth to the atmosphere of these pits, while the gardener will have the very great advantage of attending to his young nurslings in bad weather, without the trouble or danger to be feared from the sudden rush of cold air consequent on opening the lights on the outside. The cost of the necessary lights and framework for the pits is considerably less than the expense of a wall; and thus money is saved—the additional standing of the very best and most useful description positively gained for nothing—the proper strength of the house left unimpaired—and the general appearance of the erection, both externally and internally, greatly improved.

We present this plan to the notice of the public, feeling convinced that its many advantages will be certainly seen and appreciated. The paths, stages, shelves, and tanks for containing the water collected from the roofs of all horticultural erections, should be formed of slate, as we find it to be the cheapest and most durable material that can be employed; it is easily cleaned, does not become green from the moisture which surrounds it, and, if of good quality, will last for ages: for floors and narrow shelves or stages, slabs of half an inch thickness are sufficient. These cost, with the fixing, from fivepence to sixpence per square foot; but for wider stages, intended to carry large pots, it will be advisable to have the slates fully an inch thick, to ensure a proportionate strength. The arrangement of the stages must be determined by the taste or convenience of the proprietor. In our figure the principal one is flat, and placed in the centre of the house, having a walk all around it; on the other side of which, and next the glass, is a smaller shelf, of about two feet in width, and over this, at the pitch of the roof, a still smaller one, for young plants which require to be kept close to the light. The centre stage is supported by two walls of four-inch brickwork, running lengthwise of the house, and if inch-slates are used, no other bearers will be necessary; and by leaving the ends open, access is had to the under part of the stage, which forms an excellent store for roots in winter, and sundry articles at all times. The other shelves are supported by iron brackets, which have a light appearance, and cause no obstruction in getting to the front pits. The cost of a house of the size and description of that mentioned is about 120*l.*



Leaving the particular mode of heating to the discretion of the owner, we particularly recommend hot water as the medium. The price of four-inch iron pipe, which is most commonly employed, is about 3*s.* 6*d.* per yard, to which is to be added the expense of fixing. The gutter pipes made by Messrs. Burbridge and Healy are very good, but are rather more expensive. They are made in two sizes; the larger are charged 30*s*. the length of nine feet, and the smaller 26*s*., exclusive of fixing. Tanks of iron, slate, or even wood, may be employed where a command of atmospheric moisture is desired, and for bottom heat they are unsurpassed. On the subject of boilers we scarcely know how to advise. The whole of them appear to us excessively dear, and we have expectations of shortly causing an alteration which may possibly surprise some of those who at present are making fortunes in the line. That form which is most economical of fuel must necessarily be the best, and this is the great objection to all the conical-shaped boilers. They do not burn freely without being fed with superior fuel, and much of their heat is lost by radiation from the sides; otherwise they are the cheapest, inasmuch as the expense of setting is saved; they are easily fixed or removed, and are cleanly in their operation. A great deal of the mystery with which dealers are anxious to surround themselves must shortly be removed, and their prices brought down to a more reasonable level; but of this we shall have occasion to speak more fully at a future period.

We come now to the *Management of the Greenhouse.*

With a mixed collection of plants, the spring treatment commences about the end of February. The majority of its occupants then require to be gone over, thoroughly examining the whole, repotting those which require it, and cleaning, pruning, and training the remaining portion. In performing the operation first mentioned, it is essential, first, that the pots into which they are to be placed should be perfectly clean, both inside and out; that the soil, let it consist of what it may, be thoroughly mixed, if of more than one kind, and broken up in a manner proportionate to the size of the pot; thus small pots require the soil to be well pulverized by rubbing in the hands, while for large ones it can scarcely be used too rough; except for the reception of very fine seeds, the earth should never be sifted, as the repeated application of water to a body of sifted soil compresses it into a solid mass, impervious to air, where the moisture stagnates, to the utter destruction of the roots. To guard against an evil of this nature, the best cultivators always provide a drainage by placing a number of potsherds at the bottom of the pots, and mix a considerable portion of similar material, or small pieces of charcoal with the soil. This is certain to be beneficial in a mechanical manner, by assisting the free percolation of air and water through the soil, even if it has not, as some affirm, a chemical action on the roots. In potting, the small fibres should be gently disentangled, and carefully spread out near the surface of the new soil, and the collet of the plant, that portion from whence the roots issue, should always be kept just level with the top of the earth. Watering, at this season, should be conducted with much judgment and care. Some individuals that have begun a vigorous growth will require a liberal supply, while others still in a dormant state should have but little more than sufficient to preserve vitality, until they are induced by the season to begin, like their fellows, the development of their new parts. The inactive state which all plants fall into at some part of the year, but chiefly in winter, may be likened to the sleep of animals, and the water which is poured into the soil about their roots as their natnral food. Therefore, to give water in any quantity to a plant in this state would be as injurious and unreasonable as to awake a tired and exhausted man to eat a full meal of heavy food. The quantity supplied should at all times be proportionate to the apparent state of the plant. It is true, by the continued application of stimulants, plants, like animals, may be kept in an active state beyond their natural periods; but, equally alike, each will ultimately suffer from the unnatural efforts their systems are thus forced to make.

The food of plants is absorbed from the surrounding soil by the sponge-like extremities of their roots, and conveyed to the body of the plant. It is taken up in the form of water, but only certain portions, or constituents, of the moisture thus absorbed are available to the support and extension of the leaves and branches. The assimilated particles become converted, in the course of the season, by the action of atmospheric influences generally, to the formation of new parts, and the increase of those already existing. This makes plain the necessity of preserving a pure atmosphere about the plants, with a duly regulated supply of air and light. All vegetation progresses most rapidly beneath a moderately subdued light, new leaves and branches are then produced in quick succession, as may be observed in the spring months, before the sun has attained the zenith of his power, and hence the benefit of a slight shade on all plant-houses; for the great majority of our plants are either actively employed in the formation of fresh organs, or are displaying their floral treasures, just at the brightest part of our summer. To reduce the force of the mid-day sun is then highly beneficial, and the effect is increased by imparting to the atmosphere of the house a genial moisture, by means of water strewed over the floor, and a slight syringing of the plants in the evening; and this may be continued with occasional variations to meet the fluctuations of the weather, until the approach of autumn, when it becomes necessary to admit the full influence of the sun among the plants, that each may have the requisite opportunity of thoroughly maturing its recent accessions, whether of leaves, branches, or fruit; and at this season many of them form the embryo of the flowers which are to give beauty to them in the succeeding summer. Without light, however, none of this can be done, and an abortive, unfruitful growth is the only result.

From what we have just said, the winter treatment will readily be guessed at. The altered condition of the plants then require that they be kept in a comparative inert state; but though to the eye they appear completely inactive, there is little doubt that it is now that the accumulations of the summer are duly assimilated, and new vigour infused, to be developed in another season. Air and water supply to the plant, if not all, at least the principal part, of its food, the earth being correctly but little more than the medium through which the former are received; and, consequently, the management of the greenhouse may be shortly described thus. In spring give air and water moderately, increasing the quantity of both as the approaching summer draws near, when both should be supplied abundantly. Autumn treatment should be nearly identical with that of the spring, except that the increase should be in inverse proportion, and in winter the supply of moisture must be extremely limited; air, however, may still be admitted whenever an opportunity is afforded by the external atmosphere, as it has a tendency to counteract the injurious effects which an otherwise stagnant atmosphere might induce.

With respect to the various manipulations required in an extensive collection, let each be done as soon as required; the least neglect being frequently attended with irremediable effects. Watering should be done in the evening through the summer; and in the morning in winter. Plants which flower in the spring should be potted immediately afterwards ; those which bloom in summer should be done early in spring ; and the winter-flowering kinds require fresh earth in the summer months. Those which are naturally straggling in their growth should be frequently stopped, by pinching off the leading buds or points of the shoots, in the early stages of their growth, discontinuing, however, after Midsummer, or a quantity of unripe shoots will be an unceasing source of trouble through the winter. Climbing plants should be constantly secured in their proper places, or an unsightly mass of leaves alone will result. The requisite propagation should be done in summer, because the required increase is more easily obtained, and the object is attained with far less trouble ; and the appearance of disease or insects constantly watched for, and the proper remedies at once applied. Sulphur dusted over the affected parts is the best corrective for mildew, and other diseases arising from excessive moisture ; tobacco-smoke, or smelling salts, will eradicate green flies, and a high moist atmosphere is the only remedy of real worth against the ravages of the red spider ; a sponge and clean water will remove scale and mealy bug ; the frequent use of this and the syringe being perhaps the very best of all methods known for the extirpation of every kind of insect.

We close this paper with a list of plants suitable for the greenhouse described, which are selected with a view to the production of flowers at all seasons, combined with as much variety as it is possible to have without other conveniences.

List of Greenhouse Plants.

Acacia armata, yellow, March and April
        oxycedrus, yellow, April to June
Abelia floribunda, crimson, May to August
Adenandra speciosa, white, April to July
Alona cœlestis, blue, May to September
Alonsoa grandiflora, scarlet, March to October, and for bedding
Aphelexis humilis, crimson, May, August
        sesamoides, paler, May, August

- Aphelexis purpurea, purple, May to August
- Azalea candida, white, March to May
  - Danielsiana, red and white, March to May
  - variegata, rosy red and white, March to May
  - exquisita, white rosy margin, March to May
  - Indica flore pleno, double red and double white, March to May
- Boronia serrulata, rosy crimson, May to July
  - anemonæfolia, rosy crimson, May to July
  - viminea, paler, May to September
- Bouvardia splendens, crimson, May to Sept., and for bedding
  - triphylla, scarlet, May to September, and for bedding
  - flava, yellow, May to September, and for bedding
- Calceolaria, in 30 varieties, white yellow, or purple, May to July
- Camellia, in 12 varieties, white, red, or striped, Oct. to March
- Canarina campanulata, orange and red, September to January
- Cereus speciosissimus, 2 varieties, crimson and purple, May to July
- Chænostoma polyanthum, rosy lilac, from September to March, and for bedding
- Cineraria, in 20 varieties, white, blue, or red, March to June
- Coleonema pulchra, deep rose, May to July
- Correa grandiflora, deep red and green, December to April
  - flava, pale yellow, December to April
- Chrysanthemums, in 20 varieties, December to March
- Cosmelia rubra, crimson, March, June
- Crotallaria purpurea, purple, May, July
- Crowea saligna, rosy purple, July, October
- Cyclamen coum, rosy crimson, January, February
- Daviesia floribunda, orange and red, March, May
- Dillwynia cinerascens, orange and red, March, June
  - floribunda, yellow, April, July
- Diosma capitata, lilac, April, May
- Dracocephalum gracile, white, May, July
- Epiphyllum, in six varieties, May, July
- Epacris miniata, crimson, February, March
  - grandiflora, crimson and white, March, April
  - nivalis, white, March, April
- Erica ventricosa, rose, April, June

Erica ventricosa, coccinea minor, deep rose, May, July
Cavendishii, yellow, May, July
tricolor superba, rose red, white and green, May, July
aristata, crimson and white, May, July
jasminiflora alba, white, May, July
mundula, rose, May, July
Willmoreana, crimson, February, April
Hybrida, crimson, February, April
Bowieana, white, September, January
Eriostemon buxifolium, white, March, June
Fuchsia, in 20 varieties, May, September
Genista Canariensis, yellow, March, May
Attleeana, yellow, March, May
filipes, whitish, March, May
Gompholobium versicolor, crimson, May, August
polymorphum, yellow, May, August
Hovea Cellsii, blue, May, August
Hoya carnosa, flesh colour, May, August
Hydrangea hortensis, pink or blue, March, July
japonica, pink, March, July
Kalosanthes coccinea, scarlet, June, August
miniata, scarlet, June, August
Kennedya coccinea, red and yellow, June, September
Marryattæ, crimson and yellow, June, September
Lachenalia tricolor, yellow, red, and green, November, February, forced
Lalage hovæfolia, yellow and purple, May, August
Leschenaultia formosa, scarlet, May, August
biloba nana, blue, May, August
Lilium speciosum, white and crimson, May, July
album, white, May, July
Luculia gratissima, pink, September, January
Pinciana, white and crimson, September, January
Mirbelia cinerascens, orange and red, May, August
glycinæflora, yellow, May, August
Nerium oleander, double white and red, May, September
Tanglé, striped, May, September
Nierembergia filicaulis, white and purple, May, August, and for bedding

Oxylobium Pultenæa, orange and red, May, July
Paveta caffra, white, May, July
Petunias, in 12 varieties, May, November, and for bedding
Phænocoma prolifera, white and pink, May, August
Pimelia spectabilis, white, May, August
  Hendersonii, pink, May, August
Podolobium staurophyllum, yellow, May, July
Podolobium trilobatum, orange, May, July
Polygala grandiflora, white and purple, May, August
  Dalmaisiana, purple and rose, May, August
  cordata, purple and rose, May, August
Primula sinensis, white and rose, September, May
  pleno, white and rose, September, May
Rhododendron arboreum, and its varieties, crimson, March, May
Siphocampylos coccineus, scarlet, May, August
  betulæfolius, scarlet and purple, May, August
Sollya linearis, blue, May, October
Stylidium proliferum, pink, May, August
  pilosum, white, May, July
Tetranema Mexicana, purple, January, October
Thunbergia aurantiaca, orange, June, September
  alata and a. alba, yellow and white, June, September
  Fryerii, orange, June, September
  Chrysops, blue, June, September
Triptilion spinosum, blue, June, August
Tropæolum Jarrattii, crimson and yellow, May, July
  azureum, blue, May, July
  brachyzeras, yellow, May, July
Veronica speciosa, purple, May, September
  salicifolia, white, May, September
Witsenia corymbosa, blue, May, July
Zichya inophylla, purple, May, August
  pannosa, crimson, May, August
  villosa, scarlet, May, August

CLIMBERS.

Cobæa sandens, purple, June, September
Lophospermum erubescens, rose, June, September

Maurandcia Barclayana, blue, June, September
alba, white, June, September
Passiflora cœrulea-racemosa, purple, June, September
Pharbitis Learii, blue, June, September
Wistaria Sinensis, blue, May, June. EDITOR.

THE VERBENA AS A SHOW FLOWER.

ALLOW me, through the medium of your excellent work, to call attention to this highly deserving family of plants, which appear, to me at least, peculiarly fitted for the exhibition table. To speak of the vast improvement effected of late in the Verbena, or of its importance in a gardening point of view, and hence the propriety of extending that improvement, would be a mere waste of words, for all these considerations must have forced themselves upon the mind of any one who ever took the trouble to think at all upon the matter; what I would urge is, therefore, their adaptability as show flowers, the attractive feature they would form in any collection of plants, and the manner in which they should be exhibited. It must be conceded, when the matter is duly thought over, that the Verbena is as well suited for display as even the Pelargonium or the Rose; indeed it has rather an advantage over either of these, in its more compact habit, and the profuse manner in which it produces flowers. The straggling character of the former when unrestrained, and the paucity of bloom so frequently to be complained of in the latter, are objections which the skill of the florist is able to combat with and overcome, though at a great expense of trouble; how much more beautiful, then, must these objects become with the same care and skill, which are naturally dense, and ever ready to yield a complete mass of flowers in return for but a moiety of attention! besides which, there is the additional advantage which these plants possess in the much more numerous and varied shades of colour than can be found in either of the favorites mentioned.

It really seems to me as though the committees of societies, and those interested in the getting up of floral meetings, have been blinded, by some fatality, against one of the very best means of rendering their shows attractive, in which is combined all that brilliant and varied colours can do, together with a fragrance at once powerful and pleasing, presented in a form compact without being lumpish, neat and yet graceful; but though we have hitherto missed this desirable feature at our exhibitions, it is an error easily corrected in another season, for let them but offer prizes for the production of Verbenas in pots, and, from the very general extension of the genus, the reasonable prices at which the varieties may be bought, and the facilities for growing them which may be found in every garden, it is certain that the display would fully warrant any society in the outlay, and that the competition would be severe. The present paltry method of showing only cut blooms of Verbenas does not satisfy me, nor will anything less than the whole plant, and that in the perfection I know them capable of attaining. All of them are fitted to be trained so as to present a complete ball of vivid colours, but this point would of course be left to the judgment and taste of the exhibitor. It will only be necessary for the societies established for the purpose, and to whom, I bear willing testimony, horticulture is mainly indebted for its present position,—it will only be necessary for them to offer prizes of such value as shall afford a recompense for the trouble incurred, and to stipulate for whatever number of varieties they please, to be shown in pots of a certain size, to ensure a full attendance of really handsome objects.

As to the manner in which these are to be produced, I presume all cultivators of any standing are perfectly acquainted with the very simple management necessary for the Verbena, but for the benefit of those less instructed, I subjoin the method most likely to answer.

Let *young* plants be procured in March for the purpose. This is rather an essential point, as the old ones, or those which have been kept through the winter, though stronger now, will become shabby just at the time they are wanted in the best state; young ones, however small, are therefore preferable. Let these be potted in moderate-sized pots, say forty-eights, and encouraged to grow so as to be able to stop them, as it is termed, twice before the middle of April; they will then have formed nice healthy little plants, and may at once be placed in the blooming pots. The soil I should select is a mixture of peat, leaf-mould, loam, and sand, in equal quantities, used rather roughly and effectually drained. The plants will now make vigorous growth, and must again be stopped, till they assume the character it is desired to impart; keeping them throughout all the growing season in a slightly shaded, moderately warm position, sufficient air being admitted to preserve them from mildew, and becoming drawn. Green fly is sure to be abundant, but is easily kept down by fumigating with tobacco-smoke. When the flowers are about to expand, more sun will be necessary, to give them colour; and this, with the necessary tying, embraces all their management.

HORTULANUS.

CALENDAR FOR JULY.

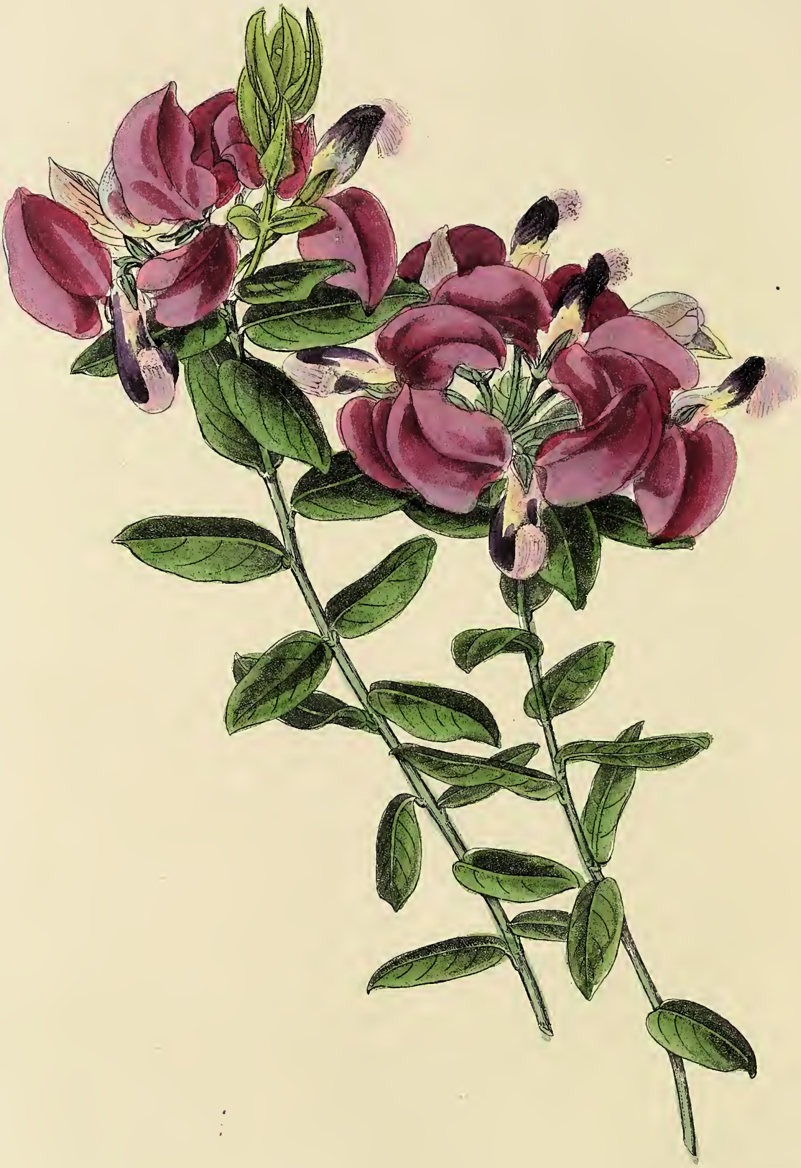
If a month of real inter-tropical weather has caused some trouble to preserve a proper humidity about the plants recently placed in the flower-garden, it has not been altogether without its advantages, for were they no greater than the check thus given to the ravages of the snail and slug, which promised to be so formidable in the early part of the season, and so allowed the plants a chance of establishing themselves, would leave us little cause of complaint; as it is, all bedding plants of which we have intelligence are progressing most satisfactorily; redoubled vigilance will, however, be necessary, should a continuance of showers occur, for without doubt the slimy creatures will avenge themselves on every opportunity for the abstemious manner in which they have been obliged to live. Other enemies are also numerous, and with every favorable change of weather may be expected to make their attacks, which are to be dreaded in proportion to their strength. The common aphides and red spider are most to be feared. The former are easily expelled, as before directed, with fumigations of tobacco-smoke, or, where that cannot be applied, with diluted smelling-salts. The latter are on the whole, perhaps, the most troublesome depredators we have; nothing is more effective against them than maintaining a humid atmosphere, or, in the case of plants in the open air, frequent washings thrown over the foliage with some force by the syringe or garden-engine;

if sulphur is mixed with the water it will be an assistance, as the fumes which it gives forth, when the sun shines, is very obnoxious to these little pests.

In the flower-garden there is a comparative rest through this month; little requiring attention beyond the ordinary preservation of neatness and order, and the propagation of half-hardy plants for the next year. In the florist's department, however, the contrary should rule. Ranunculuses should be got up, tulips dried and put away, the propagation of pinks, pansies, and other similar plants proceeded with as fast as possible. Carnations and picotees will require layering by the middle of the month; dahlias should be thinned, and tied out with additional stakes; the compost for auriculas got ready, and the budding and layering of roses attended to whenever there occurs a shower or a cloudy day.

The greenhouse plants are for the most part in the open air, and should have a regular attendance with the water-pot; pelargoniums should be cut down, repotted, and the cuttings struck for additional stock. Many of the heaths are benefited by a shift this month, especially those which bloom early, or others that are growing fast; all should be thinned, tied, and stopped as required. Tall cacti may be repotted, and should have every encouragement to the development of a vigorous growth. Azaleas delight in an airy, shaded position, and should be frequently sprinkled over head. The house itself should be kept gay with tender annuals. Chrysanthemums, primulas, hydrangeas, and other plants for forcing and winter flowering should be potted, and brought forward as fast as possible, that they may have a slight rest before the approach of winter.

In the stove all is elegance and beauty; the finest of its occupants are this month in perfection, in favour of which such as have bloomed and finished their growth may be removed to the greenhouse. The climbers are now near perfection, and may be allowed to take a freer style; Orchidaceæ claim a good deal of attention just now, many will be found to finish their seasonal growth about the end of the month, and, unless it is desired to increase their size, should be very carefully watered, or they start into a new growth, and consequently do not bloom; a moist atmosphere, shade from strong light and air in the middle of the day, are the essentials of this month's management.



POLYGALA DALMAISIANA

London: R. Groombridge & Sons, Paternoster Row.

POLYGALA DALMAISIANA.

WITH AN ILLUSTRATION.

It is not often we have the satisfaction of introducing to our readers so fine and truly valuable a plant as the present,—one which we think is destined to become a standard ornament to our collections. Every cultivator knows the valuable character of the genus to which it belongs, as affording really handsome objects throughout the entire summer months, and few collections are deficient of some or other of its members. What the reception of this variety will be there can be little hesitation in prophesying; its superior qualities will ensure for it a most cordial and deserved welcome. It is of continental origin, having been raised by M. Dalmaise, gardener to M. Lacene, of Lyons, and in character bears palpable evidence of its parentage. Its foliage and general habit is derived from the well-known *P. grandiflora,* while the colour and style of its inflorescence as evidently may be traced to the other parent, *P. cordata,* with additional advantage to be expected in such a cross of larger flowers produced more copiously than on any other known species. Indeed, for the past twelve months that we have known the plant, it can scarcely be said to have been out of bloom at all. We are indebted to Mr. E. F. Fairbairn, nurseryman, of Wandsworth, for the opportunity of figuring it, and for the appended note on its culture and history.

"The *Polygala Dalmaisiana* is a hybrid between *P. grandiflora* and *P. cordata.* It is a free-growing plant, delighting in a mixture of peat, loam, leaf-mould, and silver sand. The plant in my possession was imported from Lyons, in May 1846, and was then not more than three inches high, in a thumb pot; the same plant is now three feet six inches in height, and as much through it, occupying a No. 6 pot. In my opinion it is by far the best of the genus, and as a plant for exhibition is indispensable, being almost always in flower; and, in consequence, will no doubt be generally adopted by cultivators for this purpose when it becomes more known."

We may add, in the cultivation of this genus, it is essential to observe, first, that the soil in which they are grown be thoroughly drained, for, like the heath, their roots are very fine, and easily damaged. To preserve them from excesses of all kinds, it is a good plan to mix freely with the compost roughly broken pieces of stone, charcoal, or potsherds, and to see that at all times the water given percolates equally and quickly through the whole mass. Secondly, that the supply of both water and air be liberal in the warm weather of summer, diminishing both as the plants arrive at the dormant state proper for them to pass safely through the winter. And, lastly, that the young shoots be regularly arranged as they are produced, stopping the unduly vigorous, for the benefit of the weaker ones, tying them out as may be necessary, to allow each a full share of light and air. Mildew is almost the only disease to which they are subject, certainly the only one to be feared; and this admits of an easy remedy. Let the affected parts be dusted over with sulphur, more air be given to the plants; and a regular and moderate supply of water be administered, and it will be speedily eradicated.

We cannot refrain from mentioning the great advantage which the use of the West Kent pot, noticed some time since, gives to the cultivator in cases of this kind. An opportunity occurred, a short time since, under our eye, which demonstrated to the fullest extent the benefit we speak of. A tolerably large heath was shifted into one of them, and when the operation was done the soil was rather, but not remarkably, dry; the plant was watered and treated in the usual manner, but in a few days gave evidence that something was wrong, and on examination (so easily performed with this pot) it was found the soil, instead of imbibing moisture, had repelled it, and was then quite dry. Now, in the ordinary course of things, that plant would have been considered as injured in the potting, and its inevitable death would have been thus accounted for; but, from the facility given by the pot for examination, the true cause was instantly detected, and as easily and quickly remedied—the removal causing no disturbance of the soil. The plant was taken from the pot, the ball of earth dipped into a tub, and when properly moistened returned again to its proper position, without so much as a particle of the earth being disturbed although only a few days had elapsed since the shifting was performed.

How valuable, then, such an aid in the management of delicate plants! Indeed we think the extended use of this pot will serve to show us that much which has hitherto been mysterious, in cases of sudden death, does resolve itself into the simple explanation of starvation. Certainly, no one at all anxious about his charge will be content to work in the dark, where such ready means are at hand to ascertain exactly the state of the most vital portion of his favorites. We do not apologise for this digression, as the importance of the subject deserves our serious attention; and we would advise the immediate granting of licenses for the benefit of our provincial friends.

ON WATERING.

People are apt to think that when their garden looks dry it wants water, and that they are doing good in administering that element; but self-evident as this may seem to be, the benefit is not quite so positive as it may appear to be. On the other hand, there is a very great risk of doing serious injury.

How can this be? will be the ready interrogation. Plants require that the soil should be moist; when it is dry, the use of water moistens it: therefore, watering *must* be beneficial, and the oftener we water the more benefit we confer. This seems plausible enough; but it is just these *repeated* applications that do all the mischief.

We are speaking of hot dry weather. We will suppose that a garden gets a tolerable sprinkling every evening—enough, in fact, to saturate the surface, which then looks cool and comfortable. Next day the sun causes the evaporation of this moisture, and the ground at the surface being, as it were, made into a pudding by the drip-drip of the water, becomes baked into pie when the sun has drawn off the water. In fact, the surface becomes what is familiarly called caked. Now this is repeated, night after night, by these dribbling waterings; and the consequence is, that the whole mass of earth gets caked hard, it becomes thoroughly dry just below the surface, and, if drought continues, as far down as the roots go, and, in consequence—a very natural result—the plants languish and die, their exit from this "changing scene" being, of course, chiefly caused by the heat of the sun acting on their languid, drooping frames.

What should be done in such a case? First, and above all, give up all idea of watering every night. Break up the surface with a short digging fork; give a thorough soaking, which, of course, must be done towards evening, unless a cloudy sky favours the operation during the day; next morning, hoe the surface lightly with a Dutch hoe; do this every morning or evening, afterwards, instead of watering. If drought continues, repeat the soaking after a week, or more, but continue the hoeing. Thus will the whole garden be reinvigorated, and what was before a desert will "blossom as the rose."

Besides caking, and eventually drying the soil, slight surface waterings, if continued, encourage surface roots. This is encouraging them to place themselves in the worst possible condition under the circumstances. They may drink in a little of the water applied at night, it is true, but the mid-day sun scorches and paralyses them, and the effort of the plant to produce them is thrown away.

It is, too, of some importance what kind of water is applied. We do not mean whether hard or soft water is to be preferred, because, by universal consent, the latter is adjudged to be best; but whatever benefit pure water may confer, it is increased incalculably if weak manure-water is used. Manures which are rich in the soluble salts are known to attract moisture; and, in this way, ground watered with diluted liquid manure will be moist and fresh, when that to which pure water was applied was parched. We have known the "green" sward of a lawn to remain fresh and green where a solution had been used, and that for some time (a week or so) longer than adjoining parts watered with plain water. It is not very material what manure is used; but perhaps, *real* guano is as good as any for the purpose here referred to.

KRYPTOS.

A COMPLETE TREATISE ON THE PELARGONIUM, OR GERANIUM.

It has been tritely remarked, that the true value of a thing cannot be more accurately estimated than by its reception among the uninterested. The assertion is not likely to receive unqualified assent, but the force with which it applies to the family of plants under consideration is indeed worthy of note. The popularity of the Pelargonium exceeds that of any other plant, not even excepting the elegant and varied Fuchsia, and to point to a probable rival would be difficult, unless, indeed, it be that queen of flowers, the lovely rose. But here a difficulty intervenes: roses cannot be multiplied so fast, and, consequently, are more expensive; and besides, though the blossoms of the latter are perhaps all that can be wished, the general appearance of the pelargonium at all seasons of the year must be acknowledged as infinitely superior, both in outline and detail—the moderated graceful vigour, if we may so speak, of its branches, the pleasing tender green of its ample foliage, its rapid progress, and the facility with which it may be managed, are so many advantages almost exclusively belonging to it; and, in addition, there is that incalculable one offered in the production of seminal varieties, in which the rose in our climate can scarcely be said to participate, that it is by no means surprising it should occupy so prominent a position, and hence a good reason for the repeated notices which the genus obtains through every medium open to the conveyance of information on such a subject. Volumes have been, and may still be written without entrenchment or exhaustion of the theme; for so long as it is possible to originate varieties, so long will the interest attached to the pursuit continue unabated. But as the intention of the present paper is rather to condense into a useful form the varied practice of those who excel in the cultivation of this favorite flower, so as to place the beginner in possession of the experience of his predecessors, than to enlarge on its acknowledged claims, or to speculate on the ultimate perfection it may probably reach, the deserved encomium is passed by, and the means by which the pains-taking cultivator may attain celebrity, and at the same time elevate the position of his adopted favorites, will be proceeded with at once.

The propagation of established varieties, as occupying most attention at the present season, may properly be spoken of as an introduction to the subsequent management of mature specimens. Various modes of propagation are resorted to by different growers, or rather the particular manner of conducting the operation is varied, perhaps in the beginning by the force of local circumstances, until, by the attendance of continued success, it is received by the operator and others as a complete *ne plus ultra*, while the same end may be obtained equally as well by another individual in quite an opposite manner. This is mentioned to explain that, what may appear different or even irreconcilable to the practice of some readers, may nevertheless be taken as one means of attaining the same end. Thus, Mr. Catleugh's mode of striking the cuttings in the open border may be instanced as one way, though not that which appears to promise the most, because, after so treating them, it is necessary to keep an elevated temperature about the plants in winter, in order to have them of the requisite size by spring; whereas, did the cuttings receive encouragement in the shape of a gentle bottom heat, to induce them to root quickly, much valuable time in the autumn would be saved, during which the plants would be growing, and thus have an opportunity of establishing themselves perfectly before the winter, in which case but little assistance will be required from artificial heat, and in all probability they will be in a much better condition to withstand any vicissitudes they may have to encounter than when full of immature leaves and shoots. On this account it certainly must be desirable to have the cuttings struck as quickly as possible in the season. The manner of doing it is this: let a dung-bed be prepared at least a week previous to the separation of the cuttings, so that its heat may become moderate and steady—a temperature of about 60° or 65° is most appropriate, and, when this can be depended on, spread a layer of about six inches of fine sandy soil over the surface, and take off as many as may be required, at the same time cutting the old plants back to within three or four eyes or joints of the base of the season's growth. The cuttings must then be dressed by removing the lower leaves to within about two joints of the top, reducing the slips to about four inches in length, by cutting straight through the stem immediately below a joint with a sharp knife, so as to leave a smooth base, for if the bark is lacerated or bruised, the chances are very much against the success of that cutting. In the hands of a practised cultivator, this is almost a momentary operation, for some thousands may be prepared in a day; and when a number are ready, they should be dibbled into the soil of the bed, taking particular care to press the earth closely about them, to exclude air and prevent their removal, either by water or worms—about two inches apart is a good distance—and when all are in, let them be well watered to settle the soil around them; the lights of the frame must be kept close and shaded from the sun until the cuttings are rooted, when air must be given in gradual quantities until they will bear a full exposure, observing to keep them properly supplied with water during the whole of the time. When the young plants are able to bear the full influence of the sun they should be potted off, placing each one by itself into what are called sixty-sized pots. The soil for this purpose should be light and moderately rich, such as would be afforded by a mixture of half leaf-mould and the remainder loam and rotten manure, adding sufficient sand to make the mass porous. It should be broken up rather finely, and well incorporated. In potting, place a number of small pieces of potsherds in the bottom of each pot for drainage, and press the earth firmly round the stems, and stand the plants in a shaded situation out of doors, to establish themselves, which will occupy about a month. During this period it is of course necessary to supply them in a regular manner with water—a moderate quantity once a day is usually enough, meeting the extremes of weather by giving an extra allowance in the one case, and by protecting them from deluging showers on the other hand, the object being to preserve about the plants a kindly humid atmosphere, as it is most conducive to a full development of new parts. For this purpose it is of as much consequence to water the surrounding soil as even the plants themselves, and if the bed on which the pots stand has been properly prepared with ashes, no injury of any kind can result from this practice, and it will be well to thoroughly saturate it every day. We prefer to strike the cuttings as early as they can be obtained, making use of the hot-bed to facilitate the process, and to observe the last-mentioned inducive mode of treatment—all for the same object—

namely, that of having strong, healthy, well-rooted plants to begin the winter with, believing it to be a safer plan, than to waste the fine weather of autumn in a dawdling method of propagation, which necessarily leaves but little time for the formation of roots between the time when the plants are placed in pots and that when the clouded sky of winter stays every effort, thus leaving the plants to struggle on without the natural means of support they might otherwise possess. Besides, it is more economical to prepare them in this way, for, with strong plants in autumn very little fire heat is required till the return of spring, its only necessary application being to ward off frost, while, by the other mode, artificial heat must be frequently used, and to an extent sufficient to keep the plants growing, or they will have failed to attain the proper size when the next shifting season arrives.

It is advisable to leave all soft-wooded productions of this nature out of doors as long as it may be prudently done, lest on their return to the house the occasional bursts of hot sunshine, generally felt at this season, should induce them to begin growing again, which is only increasing the trouble of preserving them through the winter; and, with a precautionary care, the out-of-doors season may be prolonged to the middle of October with perfect safety. Let the plants be collected as closely together as can be done without absolute crowding, and bend hoops over them, on which mats may be thrown at night, affording all the protection yet necessary, while in the day they will have the continued benefit of a free atmosphere to mature and prepare them for the succeeding confinement. When it becomes absolutely requisite to remove them to the greenhouse, let each one be carefully examined as it is taken in, correcting all deficiencies of drainage as they present themselves, removing insects, dead leaves, or accumulative dirt, and then arrange them so that each plant may have "elbow room," as we have heard it facetiously termed. They should by no means touch one another, and every individual should be easy of access, either for examination or any of the manifold attentions which will soon be required.

The treatment for the first month should be as opposite to the nursing system too frequently observed as is possible; for with the strong plants which ought and may be obtained by this time, the great object will be to bring them into a completely dormant state by the admission of all the air possible, whenever it does not actually freeze, or blow in a manner that would endanger their safety on the stages. Thus, with a very moderate supply of water and no fire, the plants may be brought into a state of rest, beneficial to themselves, and causing little trouble to the cultivator—out of which they arouse at the proper time, with all the additional vigour naturally to be expected from the condensed energy thus imparted. Nor are plants thus treated near so liable to attacks from mildew, spot, or insects, as are those which have been forced to continue a weakly, because unseasonable, growth. In February, a good heap of compost, clean pots, drainage, and sticks should be prepared; and, after thoroughly cleaning the plants, let them all be repotted. The soil now should be stronger than that in which they have stood through the winter; its proportions may be about one half rich turfy loam, one fourth decayed vegetable mould (some cultivators use peat), and the remainder thoroughly rotten manure, adding to the whole silver sand, in quantity proportionate to the quality of the staple. If the loam is of an adhesive, heavy nature, and no better can be obtained, it may be necessary to put as much sand as mentioned for the minor components of the mass; otherwise, much less will do. This, of course, like the proportions of the whole, will require to be varied according to the nature of each, at the discretion of the operator.

Particular care should be taken to properly mix the whole, so that each may be intimately blended one with another; and, to further this end, should the soil be somewhat damp, and therefore difficult to work by hand, a rough screen may be used, but on no account should it be finely sifted. The shift requisite now will be for the small plants from sixties into forty-eights, while those which are stronger may be placed into one or, perhaps, two sizes larger, according as they promise to be fine, or otherwise. The roots should be carefully separated, and the outside of the old ball of soil removed, spreading the former evenly among the new soil as it is placed in the pot, keeping the best of them near the surface; and after stopping and tying, the plants may be returned to their places, and have a gentle watering, to settle the new soil about their roots. The frequent observance of this "stopping," as it is called, will, for the next two months, form an important item in their management. It is done by cutting or pinching out the terminal bud of each shoot, and its object is to increase the number of branches, and, consequently, that of the flowers. Whenever a new branch has extended three perfect joints, the bud in the central leaves at its apex should be taken off, and from the joints beneath will be protruded other branches. Now, as this increase of branches causes a like increase of flowers, it should be repeated as often as stems are found of the length till the middle of April. Longer than this would throw the flowers out of their proper season, and is, therefore, unwise. However, if the plants are thriving, they will require it to be done at least twice or three times.

The temperature surrounding the plants should be gradually increased from the time of repotting, in a manner corresponding with the advancement; thus, if they have been kept in a declining heat through the winter, till in January it has arrived at the lowest point, it would be advisable to allow, say from 36° to 40°; immediately after this operation a gradual rise should take place, making 40° the minimum for the first month, running the temperature up in the day to 45°; and here we may point to an error of very frequent occurrence: many times during this part of the year it will be necessary to have fires in the evening to exclude frost, and it is too often thought that if the temperature is then got up above its ordinary level it will be quite right to allow it to descend by the power of the exterior cold, so that by the morning it is only a degree or two above the freezing point; this is a lazy practice, extremely injurious, because directly opposed to the nature of the plant and the laws which govern vegetation, for by it the plant is actually in a warmer atmosphere at night than in the day, a circumstance never to be observed under natural influences; it is altogether better to apply just so much heat as will preserve them safely at night, and increase it early in the morning, so as to bring up the temperature to its proper level, allowing it to sink again towards evening; to assist this, and economise fuel and time, every house should be provided with a stout waterproof covering, which may be let down or rolled up at pleasure, and frequently with only this covering fires may be quite dispensed with. In March and onward, 45° should in its turn be the minimum, and 55° the maximum, and as it becomes necessary to maintain this higher temperature, so the supply of moisture should be proportionately increased; the paths, heating apparatus, and shelves should be wetted twice a day in fine weather, and the plants themselves should be syringed over three or four times a week; the humidity arising from this course is most conducive to a free growth, and also tends to keep the plants clean and clear of insects; the latter will, however, always cause some trouble from the commencement of returning action in the plants, until the cold of winter deprives them of an active existence, and even after, for so long as there is new leaf or flower-bud upon the plants, green flies are likely to attack it, and when a collection is so unfortunate as to be growing in winter, an immensity of trouble is entailed, for these little pests swarm upon them, rendering that which is weak still more sickly: however, tobacco smoke applied in moderate doses at frequent intervals is an easy and effectual remedy; it should be given in the evening, because the house may then be closely shut; the plants should be quite dry at the time, and if insects are numerous or strong, a second application on the following night may be necessary to make a complete eradication, but it is seldom they can withstand a single dose at this part of the year, and a double one never fails to exterminate all that have life.

From the period when the plants may be said to be in full activity, which will be about the early part of March until the close of autumn, it is essential that they be liberally supplied with the two principal elements which form their food, air and water, and on their appliance the whole management may be said to turn; perhaps, of the two, the first may be properly considered the most important, for on the quality and quantity of that administered the life of the plant depends; the graphic and usual direction, to "give air on all favorable occasions," is fully sufficient to the practised operator, but to the tyro is worse than useless, because it admits of so many interpretations, and yet with our varying climate it is almost impossible to express the direction in more definite terms; still there remains the question, what is a favorable occasion? Taking the months of March and April, when the ordering of the supply of air is of more importance than at any other time, how can it be described more particularly? when, in one day, we frequently have a cold cutting north-east wind and a bright sun—a combination, the effects of which, in the open air and under glass, is as different as summer and winter; in this difficulty, the beginner cannot do better than make the thermometer his guide, it is not infallible, but a little practice will amend the errors; having determined on the mean of temperature to be observed, it will be easy to increase or diminish the supply of air in a manner to suit the direction, by observing that the heat should not be allowed to become greater than the maximum given, nor to fall below the mean in the daytime. To determine the point with all the accuracy it requires and admits, the minimum should be taken as the amount for the night temperature, its opposite as that most proper for noon, while the mean is indicative of the heat which should obtain morning and evening; thus, if 45° minimum and 55° maximum be given, it should be understood that the variations are upwards from night till noon, and contrariwise from noon to night. Water is also a most important agent in the composition of all plants, but to few more so than to the Pelargonium; its supply must be regulated by the amount of heat and other atmospheric influences which prevail; thus it will be observed that some days the soil will dry much faster than in others, this may be attributable either to the presence of more air, or of an increase of fire heat, and will require to be met accordingly; as a general rule, the earth about the plants should be kept moderately moist, which may be termed a state about intermediate between perfect dryness and saturation, it is, however, always safer to lean towards the former than to indulge in a mistaken beneficence with the water-pot, not that we can recommend the "little and often" system, for that is often equally injurious, but rather, when the plants are dry, give them a full supply, so that it may thoroughly moisten all the earth in the pot, and then leave them until they are again dry. Upon the management of the first three months after the spring potting, much of the future beauty of the plants will depend. Watering, stopping, cleaning, and the admission of air, must all receive attention as they require it, without delay and without grudging. Nor must the tying and training be omitted; as the plants break into new growths they should be tied out, so as to allow the centre of the plants the chance of obtaining air and light, and to equalise the flow of sap to all the branches, and further, to enable them to grow equally, the pots should be turned round twice a week, that the portion which was behind may be brought towards the light, or they grow one-sided and become dwindled; this must be repeated until just before the flowers begin to expand, when it is better to allow them to remain stationary, that the blossoms may all face one way, and thus be seen together. Just previous to the appearance of the flower buds, it will afford the plants some assistance if liquid manure be given once or twice in a week; it imparts a deeper colour and additional vigour to both leaves and blooms, but we would caution the grower against the too frequent use of this stimulant; applied moderately as directed, it will be found beneficial, but too much ends, as do all excesses, in mischief. Liquid manure is prepared by putting, say half a bushel of fresh horse droppings into a tub, and with it nine or ten gallons of water, stir it, and let it stand to settle; it should always be used quite clear, and if too strong should be diluted till it assumes a pale brown colour.

The plants we have been describing will, with attention, form handsome dwarf bushy specimens, producing about half a dozen or more trusses of flowers, and when these are expanded, a slight shade is necessary to preserve their beauty, and rather more water than has usually been given will be required while the flowers last. Immediately after the flowering, the plants should be cut down, excepting only those desired to bear seed, leaving about three joints of the current year's growth; the pieces taken off should be struck, the old plants turned out of the pots, their roots trimmed, and after repotting, the whole should be again treated exactly as we have before described, beginning by placing them in a cool shaded situation out of doors, to grow and prepare them for the succeeding winter. The future treatment must, we repeat, be in the main just what has been spoken of, with the difference necessary to be observed with large instead of small plants; thus larger pots and more space will be required by each individual, and when arrived at the middle of the spring treatment it may be necessary to thin the shoots of the strongest, that what are left may bloom the finer ; but in all the essential points the treatment is precisely the same, and by it plants like those seen at our metropolitan exhibitions may be produced in the third season.

No one who grows Pelargoniums can deny himself the pleasure of raising new varieties, it may therefore be necessary to say something of the course to be pursued. To obtain seed which shall offer the most probable chance of success, it is necessary that it be hybridized; to do this, make choice of some of the very best forms in the collection to bear the seed, as it is found that the greatest effect on the future plant is produced by the female parent, remove the anthers from these flowers as soon as they can be seen, and next day fertilize the stigma with the pollen of such other kinds as may appear most desirable for their colours or general habit; when the seed is ripe, which may be known by its parting from the capsule, it may either be sown directly, if space can be afforded for the plants through the winter, or preserved till the following February, in either case it should be sown in pots or pans of light rich earth, composed chiefly of decayed vegetable matter, in a gentle heat, and when grown about an inch in length, the young plants should be potted and treated as previously directed; most of them will bloom in the following May or June, when the best may be selected, and increased in the manner mentioned at the beginning of this paper. The standard by which these flowers are judged is now pretty well defined; the petals must be five in number, the lower ones terminating in a rounded point, so that the outline of the whole may be as near as possible to a circle ; stiff, without being puckered at the edges, and projecting slightly forward from the footstalk, the colour of the three lower ones uniform, and the blotch or feather on the upper ones clearly margined with the ground colour of those petals; the principal flower stem sufficiently strong to support the truss erect and without support, and the flowers so arranged as to be neither confused, or widely apart one from another; the plant itself should be of compact habit and a free flowerer.

We cannot close the subject better than with a selected list of the best new and old kinds in cultivation.

NEW VARIETIES.

Arabella (Beck)
Adela (Catleugh)
Ate (Stains)
Desdemona (Beck)
Duke of Cornwall (Lyne)
Duchess of Leinster (Gaines)
Hebe's Lip (Beck)
Hector (Cocks)
Henrietta (Catleugh)
Isabella (Beck)
La Polka (Stains)
Marc Antony (Beck)
Margaret (Beck)
Magog (Stains)
Orion (Beck)
Pearl (Catleugh)
Pompey (Hoyle)
Redworth (Lyne)
Rosy Circle (Beck)
Titus (Hoyle)

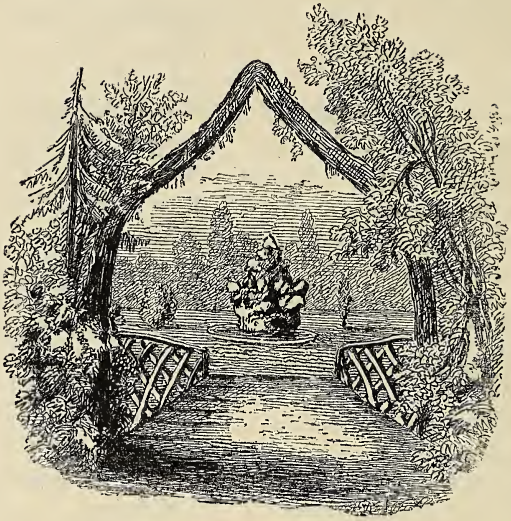
OLD VARIETIES.

Achilles
Ackbar
Brutus
Camilla
Conflagration
Elegans Nova
Erectum
Enchantress
Fair Maid of Devon
Grand Duke
Katinka
Lord Mayor
Madeline
Mustee
Nestor
Nosegay
Oberon
Pulchellum
Pauline
Priory Queen
Queen Philippa
Rainbow
Rising Sun
Rosetta
Sapphire
Sultana
Sunrise
Symmetry
Taglioni
Witch

TWELVE NEW VARIETIES NOT YET SOLD.

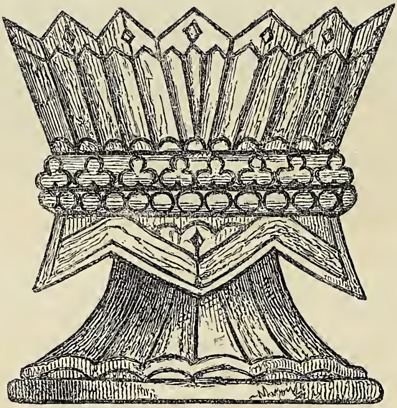
Blanch (Beck)
Cassandra (do)
Centurion (do)
Cruenta (do)
Exquisite (Hoyle)
Gem (Beck)
Lord Hardinge (Gaines)
Melpomene (Cocks)
Model (Gaines)
Mount Etna (Miller)
Pasha (Beck)
President (Hoyle)
Sunset (do.)

RUSTIC ORNAMENTS.

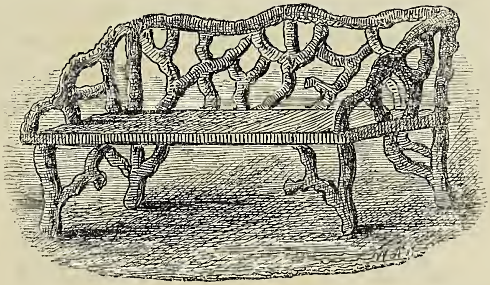


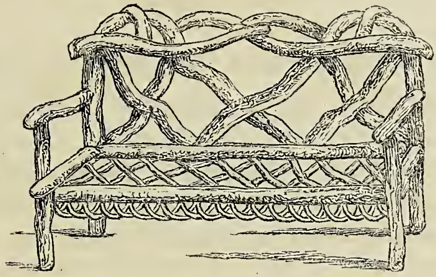
The application of rustic work, as it is usually termed, to the embellishment of garden scenery, offers to the tasteful fancy an almost endless range of subjects, in which ingenuity, aided by judgment, may render the tamest scene varied and pleasing. It is a means of ornamenting, at once appropriate, easily accomplished, and withal inexpensive, and in its working out does not necessarily require any extraordinary amount of skill in such matters, or the least supervision—any one who can drive a nail or use a saw, may accomplish for themselves whatever is desired; yet, notwithstanding this simplicity in detail, there is scarcely a limit to its appliance, and as a natural consequence, in a subject of which thus much may be said, there is abundant opportunity as well to err as to improve. Rustic objects may be classed as the intentionally artificial, and those which are desired to assimilate with the appearance of natural productions; the first are fitting objects for the decoration of cultivated ground only, and should be remarkable rather for neatness and finish than aught else—among these are the baskets, vases, tables, flower-stands, and elaborately-wrought summer-houses, most frequently met with; these are all valuable in the dressed garden surrounding or near a dwelling, but would be out of place and wear an air of absurdity in any other position. The other class is of more varied character, embracing the grotesque seat, the rustic bridge, the hermitage, those incongruous heaps called rootwork, and an endless variety of other similar devices, having for their object the embellishment of the rural glade, the forest rides, or the shrubbery walk; these, though of ruder construction, from the circumstance of their partaking closely of the character of the surrounding scenery, require an infinite deal more of true taste so to dispose them as to create the pleasurable impression intended, and yet to avoid all appearance of endeavour; any ostentatious prominences in a work of the kind, or even of any of its parts, will inevitably mar the effect, as we are then led to look at the object itself rather than at the whole, of which it is only a component; and admiration, which otherwise would be excited by the view of natural beauties, dwindles into puerile satisfaction or indifference by the distraction of attention caused by the too apparent presence of art. Ornament of any kind should ever be made subordinate to the general features of the scene, lending an additional charm rather than seeming to attach to themselves any particular notice. The transition from propriety to its opposite is so easy, and indeed so likely to occur from the very desire to improve to the utmost, that we are more particular on this head than might otherwise seem necessary; and just to illustrate our meaning, we will mention an instance or two in which the least unnecessary addition would certainly spoil every previous effort. It may be that a vista presents itself with a charming prospect, but, by an oversight in the planting or an uncontrollable habit of the trees, the outline of the opening is so exactly regular as to be displeasing: here the introduction of a rustic object on one side, as the stump of a tree, a mound, or something similar, would immediately relieve the sameness; but place it in the middle, or two of them so as to be seen together, and the absurdity of the arrangement becomes self-apparent immediately; —or, in the case of a clump of dark foliaged trees, whose sombre character it is desired to enliven, the ease with which this may be accomplished by the addition of a specimen stripped of its bark and cut to a rugged form, may be readily conceived, but add two or three more, and it becomes a cluster of unsightly dead objects, disfiguring the landscape instead of lending to its charms; of course these remarks apply with most force to such as are permanent, but it is necessary to bear the principle in mind throughout the entire arrangement of all the subjects properly referrible to this class.

With the strictly artificial objects spoken of as belonging to the flower garden, it is only necessary to observe that some proportion be kept up between the size of the object and that of the immediately surrounding space, and that they are not too profusely introduced.

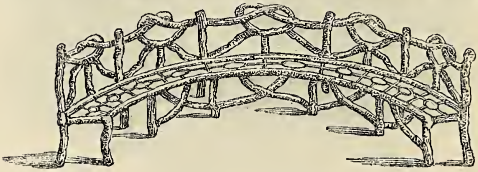


The basket or vase affords an opportunity of exhibiting a favorite plant or family in the most attractive manner, and may be said to agree equally with every kind of garden, and perhaps the only point of consideration connected with it is merely to suit the one to the other in such a way that the eye may not be offended by any incongruity of size. A small plant in a large basket looks mean, while the contrary appears at least to be dangerous; these things, however, carry a corrective with them, for the error is so plain as seldom to require pointing out. A ready way of making these articles is to cut a tub of the required dimensions across the middle, and fitting the end having a bottom upon a stout stake or rough stump of a tree, cover the whole with strips of bark, which are easily nailed on, and the interstices being filled with moss, the whole will have a neat and pleasing appearance; this is one of the readiest construction, which serves as it were for a temporary purpose, but improvements may of course be made until the finished vase, represented in our cut, is reached. As a general rule, plants amply furnished with large leaves, such as the hydrangea and others, should be grown in baskets having a wide basis, and which are not very high, while, on the other hand, the light graceful form of the fuchsia, &c., is seen to more advantage when placed in an elevated vase; these little distinctions, however simple in themselves, make up the gross amount of pleasure derivable from a garden, and therefore are not to be neglected.





It is worth while to remark, in the construction of rustic seats, arbours, and other similar things, that it is often desirable to have two pieces exactly alike, as, for instance, the back of the seat and the entrance or windows of a summer-house, or anything else which assumes the outline of an arch should have the same sweep from each side of the centre, or it has a one-sided imperfect appearance; now it might require a long search to find two pieces which had grown exactly alike, and the probability is that a pair of the kind could not be had, but this trouble is readily obviated, and a perfect match produced, by simply cutting a branch, which will form one half of the arch, down the middle with a saw—the outline may then be had as regular as that of masonry. Another little matter should be borne in mind by those who undertake this kind of work, which is always to fasten the bark on securely with small nails; for, however tight it may be when first used, there is little doubt that the action of the sun will speedily separate it from the wood, unless some precaution of the kind is previously taken. As a concluding remark, we may mention that the appearance of detached objects of this nature is greatly heightened by placing them upon smooth turf rather than in any other position, the warm brown hue of the bark then harmonises in a pleasing manner with the rich green of the turf, and the eye is not fatigued, as would be the case did the still warmer tone of gravel or the dazzling white of a stone terminate the glance.



DESCRIPTIVE LIST OF NEW PLANTS.

ASCLEPIADACEÆ.—*Pentandria Monogynia.*

Sarcostemma (*Philibertia*) *Campanulatum.* For this new and very distinct species we are indebted to Messrs. Veitch and Sons, of Exeter, who sent specimens in October last. Our memorandum gives no information of its native country, but we presume it to be Peru.

Its broad cordate leaves, and large yellow campanulate flowers (mottled inside with brown), are strikingly different from those of other previously-described Sarcostems, to which M. Decaisne reduces the Philibertias. More especially the base of the leaves being very deeply heart-shaped, with the lobes almost overlapping, is very different from what is found in *S. solanoides* and *grandiflorum.*

It is a pretty little shrubby greenhouse climber, well adapted for training over ornamental wirework fastened to the pot; and, like most of the plants belonging to Asclepiads, it requires a rich loamy soil, and plenty of moisture during the growing season. Afterwards, when done flowering, it should be allowed a time of rest, by gradually withholding moisture until the soil in the pots becomes tolerably dry, when the plant should be placed in the warmest and driest part of the greenhouse until the following spring. At that season the plants should be fresh potted, cut back freely, and placed in a gentle, moist heat for a few weeks. It is easily increased by cuttings, and flowers the greater part of summer and autumn.—*Bot. Reg.* 36-46.

ERICACEÆ.—*Decandria Monogynia.*

Azalea obtusa. This remarkable species was sent to the garden of the Horticultural Society, by Mr. Fortune, July 26, 1844, from Shanghae. It is a little bush, with very blunt leaves, both smaller and narrower in proportion than we find upon the species already in our gardens, and also smaller flowers, of the most glowing red. The latter have uniformly five stamens only, the characteristic mark of the genus Azalea, and thus seems to show that the additional number hitherto remarked in the Chinese species is a mere result of cultivation. The segments of the corolla are nearly oval and sharp-pointed; the upper one is not much smaller than the others, and is faintly blotched with purple. Its high northern latitude would seem to indicate that this plant may be hardy; but it has hitherto been treated as a greenhouse shrub. In addition to its other merits, it has that of being sweet-scented, like sweet-briar.—*Bot. Reg.* 37-46.

EPACRIDACEÆ.—*Pentandria Monogynia.*

Epacris dubia. This plant has small white flowers; it differs from *E. heteronema* in having narrower leaves, which are plainly three-ribbed through their whole length, terminated by a blunt callus, and not by a slender spine; from *E. paludosa,* for its leaves are not acerose, nor are the lobes of the corolla large and rounded; nor is it *E. obtusifolia,* for it is not slender enough, nor are the leaves abruptly blunt, nor is the calyx ciliated. But a question is asked whether it be a true species, or merely a garden hybrid, and, in the absence of information on this head, the above specific term has been appropriately given.—*Bot. Reg.* 38-46.

GESNERIACEÆ.—*Didynamia Angiospermia.*

Gesneria bulbosa, var. *lateritia.* I much fear that the *Ges-*

neria faucialis and the *G. Suttoni* should be united with *G. bulbosa,* which is evidently a highly variable plant, and one that has apparently an extensive geographical range, extending from Brazil to New Grenada. In the latter country, about Santa Martha the present singular variety of this species, for such I take it to be, was detected and sent to Kew by our collector, Mr. Purdie. It first produced its blossoms, &c., at Sion House, under the skilful management of Mr. Carton. At first sight it is distinguished from the true *G. bulbosa* by its pale brick-coloured flowers and by the drooping racemes. The arrangement of these flowers, in the raceme, on simple pedicles, would rather induce me to refer this to *G. faucialis* than to *bulbosa,* could I persuade myself they are really distinct; but, as far as I can find, the leaves and flowers are alike in both, and the only difference discernible is in the large and more divided raceme or panicle of the true *G. bulbosa.—Bot. Mag.* 4240.

Gesneria elliptica, var. *lutea.* Another of the results of Mr. Purdie's mission to the mountains of St. Martha, New Grenada. The flowers of this species, however, exhibit much variation in hue; and we have chosen the most unusual of these colours in the genus, namely, the yellow. Others are brick-coloured, and some bright red; all are graceful in their growth, and handsome in their flowers. As a species it will rank near *G. rutila,* and especially that variety of it called *A. atrosanguinea;* but the shape of the upper part of the corolla and the relative size of the lips afford distinguishing characters. It flowers in a warm moist stove in May, and through most of the summer months.—*Bot. Mag.* 4242.

BROMELIACEÆ.—*Hexandria Monogynia.*

Pitcairnia undulatifolia. A native, probably, of Brazil; but of the history of which we know nothing, save that it was sent to the Royal Gardens of Kew, from Liverpool, by our obliging friend, Mr. Shepherd, under the name here adopted. It is a very showy plant, and no stove collection should be without it. The leaves are handsome, and of a light green; the lower bracteas are furfuraceous below, red, tipped with green, and the long, protruding corollas are quite white. It flowers in May, and easily bears parting at the root.—*Bot. Mag.* 4241.

GENTIANEÆ.—*Pentandria Monogynia.*

Leianthus umbellatus. A rare and little known species, handsome in its habit and in its ample foliage and singular large involucrated umbels of flowers ; but these last are wanting in colour to render the plant a very striking one. It is a native of Jamaica, and seems to have been unnoticed by any one till my excellent friend Dr. Macfacdyen transmitted dried specimens some years ago, and more recently (in 1843) our collector, Mr. Purdie, has sent both specimens and seeds to the Royal Gardens of Kew. The latter were reared, and produced fine flowering plants. It is a mountain plant, which Swartz gathered in the parish of St. James, and Mr. Purdie on the summit of the Dolphin, Hanover, where this noble species attains a height of twenty feet. It flowers in May, and succeeds best in a hot, moist, stove heat.—*Bot. Mag.* 4243.

CALENDAR FOR AUGUST.

The elm-trees in the neighbourhood of London are known to have been subject to be attacked by the grub of a small beetle (*Scolytus Destructor*) for a number of years, but it was not until from fifteen to twenty years ago that its ravages attracted much notice. About that period, or a little before, the damage inflicted on most of the old elms in St. James's Park, Kensington Gardens, Camberwell Grove, Lincoln's-inn Gardens, and, in fact, in every district where the trees were large, excited very considerable attention. It was then thought that only old trees in an incipient state of decay were attacked, but this is not the fact, as is evidenced by the numbers of trees from twenty to thirty years of age which have been destroyed within the last few years in the Regent's Park and other places. The perfect insect, which is a small brown beetle, appears in June at the mouth of the round holes which it bores through the bark to liberate itself. In a short time the eggs are deposited beneath the bark by the beetle boring a passage two or three inches in length in the new bark, and then the eggs appear to be deposited at regular intervals on each side of the passage, in the tenderest parts of the new bark, and the insect dies apparently at the end where it entered, in which position they are generally found. How long the grub exists in this state is perhaps hardly correctly known, but as soon as hatched it commences its ravages by eating into the young bark away from the passage in which the eggs were laid, enlarging its passage as it grows, and diverging in its progress so as seldom to interfere with its neighbours. They thus so cut up the vital bark of the tree that death in a few years ensues, frequently causing irreparable damage to avenues and parks. No remedy has been discovered for this pest, although many experiments have been tried. The fact is, that the presence of the enemy is seldom detected until the mischief is very considerably advanced. Chemical washes, peeling the trees, plastering or white-washing the branches, and various other ways have been tried with very poor success, and the only check on the spread of the evil appears to be to cut down and burn the infected trees as soon as they are attacked. A thorough charring, so that enough heat is applied to destroy the insects, will leave the wood in a good state for gate posts and other rural purposes.

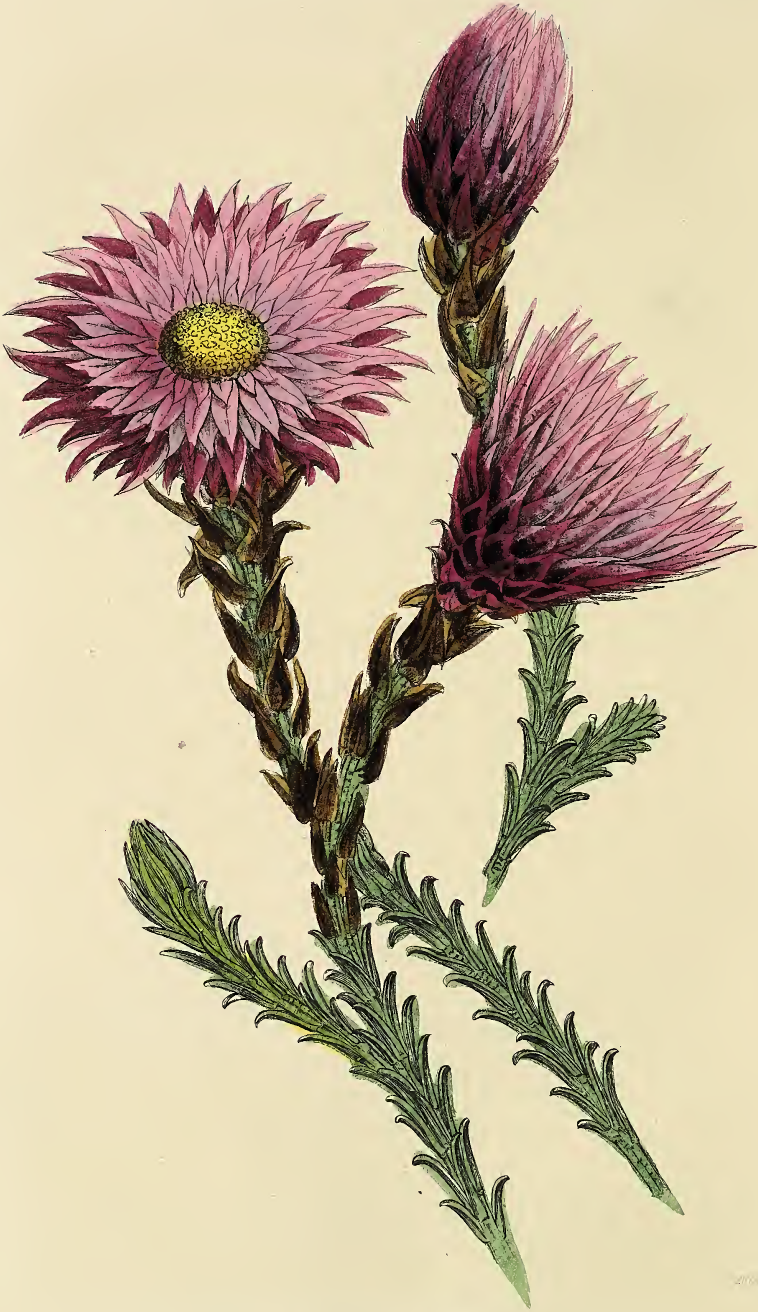
The flower garden ought now to have reached its most attractive state. If ever so full of splendid flowers, however, if the strictest keeping be not rigidly maintained, more than half its beauty will be lost. As the plants increase in growth, the propagation of stock may be carried on with the greater energy, whether there be room enough to winter a full crop for the next season, or only sufficient space to secure a comparatively few. In the last case the earlier they are struck the better, as they will then have plenty of room to become established, so as to afford a good supply of cuttings early in the following spring.

The directions given last month for the greenhouse must still be attended to. If rains occur, the plants set out must be looked over, to see that none have wet standing in their pots, or that the mould becomes in any way soddened.

In the management of the stove, the last month's advice must also be still kept in mind, especially in removing all plants which have completed their growth to cooler quarters, unless the object be to grow large specimens by sacrificing the next crop of flowers, in which case the necessary shifting the plants to larger pots as they advance in size should also be regularly attended to.

D. M.

In the Calendar for June, by *Gorteria ringens* was intended *Gazania rigens;* and by *Gazania rigens, Gazania uniflora;* the first producing orange flowers, with a dark ring in the centre, and the last having pale clear yellow flowers.



Alfred Adlard sc.

APHELEXIS. SPECTABILIS GRANDIFLORA.

London Published by R. Groombridge & Sons, Paternoster Row

THE GENUS APHELEXIS.

WITH AN ILLUSTRATION.

The subject of our present figure is one of the limited number of truly valuable plants which may justly be termed indispensable to ever so restricted a collection. Improving on acquaintance until, by degrees, they attach to themselves a deserved importance which no neglect or time can obliterate, or even remove. Every cultivator of greenhouse plants is aware of the ornamental character of the entire genus; and the two species *humilis* and *sesamoides* are among the most popular plants at all floral meetings. The compact, neat manner in which they grow, the richness and depth of colour which pervade their flowers, together with the length of time they will continue in perfection, mark them as especially suited to the exhibitor's purpose. But, however excellent these two plants may be, in every consideration the variety under notice so far exceeds them as to be distinguishable by the commonest observer. In habit the specimens we have seen appear to be about intermediate, more erect, and therefore less lumpish than the first-mentioned species, without being so lax as the latter. In fact, it is of that happy medium stature as to require scarcely any assistance in the arrangement of its branches, to ensure the desired fulness now requisite to all perfect specimens. The flowers, too, are larger, and of deeper colour than those of any other known member of the genus; and, to crown the whole, they are found to preserve their beauty unimpaired for a longer period than is usual with those commonly grown. Join all this to the fact of their easy culture, and we have very nearly a *ne plus ultra* among plants.

However eulogistic we may seem, our opinion is fully borne out by the value practical men place on the plant, and the eagerness with which it is sought; and we are confident, whoever includes it in his collection will have no reason to regret the choice. It appears to us there is a slight error in the name employed. It is, without doubt, a variety of the species formerly called *Helichrysum spectabile;* but which, on the revision of the family by D. Don (who also adopted the present generic appellation), was superseded by the now established title *humilis;* and, therefore, it should be written *A. humilis grandiflora.* But as the plant has been distributed as a variety of *spectabile,* we continue the term, lest the alteration (as is too frequently the case) should lead to confusion; and, having mentioned the mistake, leave it to those interested to use which they please.

We are indebted to Mr. J. Cattell, nurseryman, &c., of Westerham, Kent, who had the good fortune to introduce the plant, for the opportunity of figuring, and also for the accompanying note of its history and culture; who, it seems, did not estimate the value of his own production near so full as it deserved. But, as he remarks, the appearance of the plant in the principal collections, at nearly all the metropolitan exhibitions, has stamped it with a character which renders encomium unnecessary.

"I received seed of the Aphelexis from the Cape of Good Hope, in the year 1838 (with some other seeds from the same quarter), marked *Elichrysum spectabilis.* As the plants came into flower, I did not consider the fine one a permanent variety; but as it was so fine I did not part with it, but kept it as a good one to propagate from. After flowering a second and third time I thought it well worth keeping as a good distinct variety, and as such recommended it to my friends; but as I did not charge a high price for it, very few took the trouble to grow it, till some fine plants made their appearance at some of the shows. The great beauty of the variety is the length of time it keeps a good colour, as well as the size of the flowers.

"In a gentleman's conservatory, near here, a plant of it was brought finely into bloom about the beginning of last March, and stood there till the end of July. Even then the gardener was reluctant to remove it, as it was so showy; and nothing but the consideration that he would weaken the plant too much for the next year could induce him to do so.

"*Propagation, Soil, &c.* Cuttings taken any time in August root readily in silver sand, under a bell-glass, in a gentle heat of about 75° (the two or three years old branches will do as well for cuttings as the young). As soon as rooted they should be potted off into small pots, in very sandy peat, and set in heat again till they are rooted round the pot, when they should be hardened off.

The soil for their after-culture I should recommend to be rough, rich peat, made very sandy. If the peat is poor, a little light loam mixed with it will greatly benefit it. The best time to shift them is the month of July. If the plants are not bushy, any shoots may be cut off at this time to make them so; and, after shifting, they should be set out of doors in a similar situation to that which heaths, &c., would be set in at this season of the year. The advantage of giving them a long period out of doors is so great, that I should be inclined to put them out before or by the middle of July, and an occasional watering with clear liquid manure about once a week during the spring and summer months will be found of great advantage to them. In winter, a dry and very airy part of the greenhouse should be chosen for them, as they are impatient of a confined atmosphere. Treated in this way, they begin to show colour by the end of January, and by March are ornamental enough to grace the conservatory, where they will be very beautiful till the season comes to remove them out of doors.

"J. CATTELL."

GLOXINIAS.

SIR,—I wrote you last April on the success attendant on my system of growing Thunbergia as a window ornament, and at this time I have one more luxuriant than at any time last season.

I take this as an opportunity for naming the above; but my object is to state the success I have had in the growth of one of, as I conceive, the most beautiful, both in foliage as well as flowers, of our stove plants, viz. the Gloxinia; and, having an ungovernable desire to grow them, with the best accommodation I could attain, I commenced with but a single light box, and bottom heat to start them with. I procured a bulb last autumn, and kept it in silver sand, in a cupboard in the house, of course free from frost and damp, until the last week in March, when I made a hotbed of about half a cart-load of stable dung, placing on my light, as is usual, and potted my bulb into a 16-sized pot, in a compost principally of rough peat, or heath mould with silver sand, and a small quantity of old melon-bed dung, well rotted, with good drainage. I placed it in the light, when it soon began to show progress, much to my satisfaction. I got a good bottom heat, to which it gave a ready response by a most luxuriant foliage. At the present time it has upwards of forty blooms expanded, having been in bloom the last six weeks, covering a space not less than 2½ feet in diameter, without further bottom heat; but our most beautiful summer may account for my extreme success, causing further bottom heat unnecessary. From whatever cause, it has been the admiration of not a few of my friends who are gardeners; one of whom, a very skilful man in his profession, gave, as his unasked opinion, that it had not been brought to such a state of luxuriance in its present position.

I will also take leave to say that I have had in the same box a *Gardenia radicans*, or, as some call it, *Cape Jasmine*, which is in equally good condition, developing its lovely white and richly-scented blossoms most profusely. *Achimenes grandiflora* and *longiflora*, I have no doubt, would have luxuriated equally with the like treatment, as they progressed beautifully; but, from an untoward circumstance, they were damaged beyond hope of recovery; showing that this beautiful class, to which a great many more may probably be added, can, with a very little accommodation and experience, be brought to a most luxuriant and perfect growth, without the assistance, generally thought to be necessary, of a stove.

In the foregoing, Mr. Editor, I believe you can bear me out, as far as health and accommodation.

I am, sir, a sincere lover of Floriculture, and subscribe myself,

Yours, &c.

SUB NOVICE.

[We have repeatedly drawn attention to the superior claims which Gesneraceous plants have in general; and here is an instance of what may be accomplished through them with very limited means. The plant our correspondent mentions was really excellent; nor was it a single instance of success, for there were several equally healthy when we saw them. The untoward accident mentioned was an error committed in fumigating, which destroyed the beauty of many contained in the box. To the amateur gardener these plants are peculiarly suited; they require no attention in winter, and at other seasons respond so freely to every little attention given them, and are altogether so richly beautiful and varied, that it is really wonderful they are not more extensively cultivated.—Ed.]

HINTS ON FORCING FLOWERS.

During the present month the due preparation of subjects for forcing into early bloom becomes necessary, and without considerable attention both to the selection of the plants and the state of their present health, the decorative portion of the occupants of the conservatory and greenhouse from December to March next will be deficient and meagre. A few hints on the subject may not, therefore, be out of place. It is somewhat extraordinary that, with the extensive list of plants capable of bearing the necessary treatment to this end, and which would contribute immensely to the ornamenting of any situation at the season mentioned, the practice of forcing a comparatively insignificant portion, almost devoid of variety, and consequently deficient in interest, should still prevail. In the majority of places we find little besides bulbous-rooted plants, such as hyacinths, tulips, &c., with now and then a few pots of violets or mignonette, or a chance rose. No wonder, then, there should be complaints of a paucity of flowers: a bouquet could not be cut from such materials at any time. Let the subject, then, receive a little more consideration now that the deficiency may be supplied. There are very many things among the most ordinary garden plants which would then be esteemed remarkably beautiful, and are well suited for the proposed purpose. Pinks are sometimes forced: why not treat carnations, which are far more showy, in the same manner? They do not require so much heat, 50° being fully sufficient to bring them out in a vigorous manner. Most gardeners devote a frame to violets: let me advise them to put a few pots of anemones and gladiolus along with them. All the pæonies force well under a gentle regimen, and create a grand display. The common Indian pink may be made to flower beautifully in March. Turban ranunculuses also, if potted now and kept in a cold pit, render some assistance. The beautiful *Andromeda floribunda* and *Ledum palustre* should always be included in the list of forcing shrubs; dwarf plants of the double-blossom cherry and almond afford a profusion of lively-coloured flowers, and may be had at any early season; nor should the brilliant *Leonotis Leonurus* be forgotten. Of course rhododendrons, lilacs, kalmias, &c., are sure to be employed where forcing is carried on with the least spirit. Some of the low-growing campanulas, particularly *fragilis* and *Barrelierii,* with a little management in autumn, may be induced to form a new growth at the beginning of winter, and will then form fine objects by February, supplying a colour which is otherwise deficient among forcing flowers. Many of the hardy herbaceous plants might, by throwing them into a partial rest at Midsummer, as would occur through the operation of taking up and potting, be afterwards grown gently onwards through the autumn and winter, and, with the help of a little dry heat, be had in flower along with others more legitimately belonging to the class. Several of the Linums, for instance, are known to bear this treatment well. The same may be said of the Mimulus, the Œnothera, the Primula, the Silene, and several others. It seems, therefore, there is no lack of material for forming a grand display, and it only requires further the necessary conveniences and sufficient energy in the management to ensure it.

HORTULANUS.

BUDDING AND GRAFTING.

THESE two operations, fundamentally alike, both in design and the result, are of incalculable importance in the preservation and improvement of all the races of what are called hard-wooded plants, and not a few in the class distinguished by the opposite term, soft-wood. The culturist who is alive to the value of the process, calls it to his aid in all cases of difficult increase, and not unfrequently with a view to improve by imparting additional vigour in some portion or other of the system of the subjects operated on. The effect on our orchard and other fruit-bearing trees, the finest of hardy flowering plants and other ornamental objects in the open air, are sufficiently known, to say nothing of what it does among the rare and valuable inhabitants of our glass structures; and, therefore, though among the most ordinary operations of gardening, its established consequence does away with the necessity of any apology, even for its frequent mention.

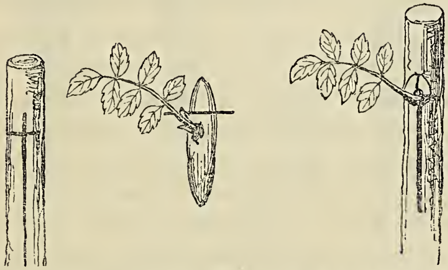
The difference between budding and grafting is, that in the former but a single eye or life-point is employed, and that is so intimately blended by the operation with the very system of the worked plant, that in a short time the point of union is not perceptible, and therefore it is greatly to be preferred for all nice work; while the graft, being part of a branch, and altogether of larger proportions, requires a length of time to properly cicatrize or cover the joint. Each of them, however, have their advantages, though we certainly believe those of the bud to outweigh the other.

To ensure a reasonable prospect of success in budding, it is essential that both the stock or plant to be worked, and that from which the bud is obtained, are in an active state of growth at the time; and this constitutes a great difference between the two operations, as grafting may be accomplished when the subjects are comparatively dormant. Budding is preferable for several reasons. In the first place, if a scarce variety of any kind is desired to increase, the portion which would supply but one graft will furnish several buds, and consequently increase the chances of success and the number of specimens. Again, as the single eye necessary is of course small in proportion to the entire scion, so smaller stocks may be used, which is a saving often of both expense and space, and moreover the stock does not require so much manipulation; its outline or appearance is not altered, so that, should the bud fail, there is no other loss, as frequently happens by the failure of a graft, where, in consequence of the head of the stock being cut over to prepare it for the scion, its very existence is endangered, or at least it is rendered unsightly for a long time. These considerations of course apply with most force to the case of valuable exotics, where sometimes the stock possesses no mean value of its own, and, indeed, it is worth a thought under any circumstances.

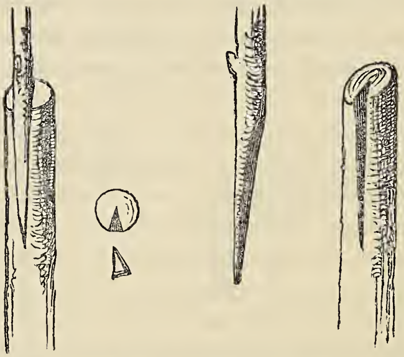
Budding should be performed in the open air, according to the state of the plants, between Midsummer and the end of autumn. In the majority of cases, where the subjects will furnish buds, we prefer to do it at a later period than is usual; say, from the middle or end of August till the same part of the following month; and for this reason, taking the rose as an example, when buds are inserted in June or the early part of July, as is frequently recommended, immediately the union is effected they begin to grow, and in the course of August often attain a length of one or two feet, and at this time occur our violent autumnal gales. Should these new growths be subject to their action, the chances are, that the finest are blown out—severed completely from the imperfect hold they have yet attained; nor will the utmost attention at all times secure them. On the other hand, buds which are inserted at an after period remain dormant. They do not grow, but gradually and firmly extend their hold of the stock, and in the following spring break with a vigour far surpassing the others. They are in the mean time safe from every peril, and will be found to "take" with more certainty, as they are not subject to the drying influence of the scorching July sun, so frequently fatal to the earlier buds.

The operation of budding is performed in the following manner: a thin-bladed knife, made very sharp and having a flat haft or handle, together with strips of moistened bast, are required, the first to form the bud and incision, and to assist in placing it, and the latter to secure it when in its proper position.

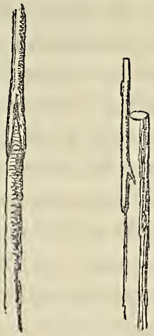
The branch from which the buds are to be taken being at hand (and it should always be observed to have the buds fresh and vigorous), with the blade of the knife make a cut of about an inch and a half in length down the bark of the stock, where the bud is intended to be placed, allowing the knife to go just through the bark, without injuring the wood beneath it. A cross cut should be made about half an inch from the upper end of the former, and then, with the flat haft of the knife, it will be easy to raise the bark along the sides of the cut to receive the bud. The latter is prepared by entering the knife about an inch below the eye, and drawing it evenly upwards till it comes out a little above the eye, taking care to cut the "shield," or piece of bark adhering to the bud, as thin as possible. It is by some thought necessary to remove the small piece of wood which is brought away by the knife from the bud altogether, which is done by raising one end, and with a quick jerk draw it from the bark; but the great liability to spoil the bud in this manner has driven the custom out of practice, for it was equally likely that the centre of the bud itself would be drawn out in removing the wood as that it should remain, and if the shield is cut thin, the very small piece attached to it will cause no hindrance either to the operation or its ultimate success. Should, however, the knife enter rather too deeply, the thickness of wood may be reduced by paring until there is little or none left. The leaf attached to the bud should be cut off, and then it is ready for insertion. With the handle of the knife raise the bark of the stock, and gently press the bud into its place by slipping it under the bark of the stock, so that the latter may completely overlap it on all the edges; then, with the bast, tie the whole tightly round, so as to exclude air from every part, except just above the eye, and it is complete. The accompanying engravings will make all apparent that we have failed to convey in words, and we have only to urge the importance of doing everything connected with it in as quick a manner as possible, that no part of the bark or wood may become dry.



Grafting is performed in various ways, to suit the circumstances of peculiar cases. The most usual is the cleft, or crown graft, and the whip graft. The first is to be preferred, as it affords superior opportunity for securely fastening the scion, which is also assisted by the wedge shape of the latter, and this mode is more likely to succeed, because of the greater surface presented to the union. For root grafting and the working of hard thin-barked subjects it is so decidedly preferable, as to be almost always employed. It is, moreover, easier, and therefore better suited to the amateur. The manner of doing it will be seen at a glance of the subjoined woodcuts. The stock is cut over in a slanting direction, and on the upper edge a lengthened notch is cut out, in depth proportionate to the substance of the scion to be inserted. The latter is then cut wedge-shaped, as nearly the size of the previously made notch as can be guessed at, and is then slipped into its place, pressing it down until the bark of both graft and stock fit each other exactly. If the stock then projects upwards beyond where the union commences, that part is cut away in a sloping manner downwards from the scion, that no lodgement for moisture may be formed. The two are then tied firmly together, and if the subjects are out of doors, the whole of the meeting parts are covered with well-tempered clay ; or, if they are tender plants, it is usual to place them in a temperature rather more elevated than they are accustomed to, and by maintaining a close humid atmosphere about them, the perfect union is speedily effected. By the above method several scions may be inserted in the end of a large stock, and is then called crown grafting.



The whip graft is made by cutting over the end of the stock, and afterwards paring away a longitudinal portion of the bark and wood until a flattened surface is left, of about the diameter of the graft to be used. This is then cut in the same manner, so as to fit exactly at both its edges with the bark of the stock, and to make a neat appearance in after years. Each should be nearly of a size. When the two flat surfaces are made precisely alike, a notch may be cut by merely entering the knife upwards in the scion and downwards in the stock; and, when fitting them together, the thin slip thus formed in the scion should be pressed into the notch of the stock until every part is in its right place, which assists in steadying the graft, and makes the union more complete. The binding and covering is then done, as before mentioned, care being taken that the joint is not disturbed by any cause after it is once formed. The shape of the joint, as before observed, may be varied at pleasure; nor does it particularly matter what method is employed, so that the bark of each fits the other closely in every part, and that it be of such kind as to look neatly when finished. The success of the whole depends entirely on the manner in which the joining of the bark is done, and on the exclusion of atmospheric influences until perfect.



Another mode of grafting is by the inarching process, but it forms so clumsy an union as to be hrown aside except in the case of very difficult scions which will not bear entire separation from the parent plant until they have some hold of their future support. It is done by bringing the stock and the plant bearing the intended graft together, and uniting the two in the manner pointed out in whip grafting A piece is cut lengthwise from each, of equal sizes, and the parts thus exposed being fitted close, are bound together, and are so left until united, when the graft is cut from its parent; but, with the utmost care and nicety exercised in the operation, it is impossible to make a good joint, for there is all the thickness left on the scion to project beyond the stock, while, on the opposite, the latter juts out, and the whole looks extremely awkward and unsightly, besides which, there is great danger of a disruption for a long time on the least roughness being used to the plant.

Connected with the subject of grafting is the question of when it may be done to most advantage. We have no hesitation in recommending the month of March for working all sorts of fruit-bearing trees which stand in the open ground; because the increasing action of the sap superinduces a like action in the scion. Still, grafts may be inserted in the autumn with nearly equal success; and this is often a matter of convenience not to be overlooked. Speaking generally, the *best* time for the operation is when the subjects are just commencing their seasonal growth, which, of course, will vary with the nature of the plant; and the next best is immediately before the cessation of action at the close of the season. That grafting should be performed at the latter period with success is a strong argument in favour of the descent of sap; and as giving increased force to this view of the matter, it has been observed that such as have a mass of foliage above the point of contact attach themselves more readily, at this period, than those which are destitute of leaves. The importance of vegetable physiology to the science of horticulture is here again placed in a prominent point of view; and the benefit of its study, to all who desire to pursue the latter in a manner apart from mere empirical rules, becomes more and more apparent the farther we enter into the question; and we fervently hope for the time when the leading principles of this wide-spreading subject shall become established in men's minds, and their practice clearly deduced from its unerring guidance.

EDITOR.

PROTECTION TO PLANT-HOUSES FROM HAIL.

It may not be amiss, now that this subject is so painfully present to the minds of so many whom it concerns, to call attention to some means of meeting and preventing a repetition of the calamity which has overtaken the horticulturists in the vicinity of the metropolis within the past month. The newspapers will have made our readers aware that since our last a terrific storm of thunder, accompanied with by far the most destructive fall of hail that we have any record of, visited the central portion of the kingdom, dealing desolation and ruin throughout the suburban districts of London, to an extent really dreadful to think of. The destruction of property among the nurserymen and commercial growers in the neighbourhood of Clapham, Brixton, and Vauxhall alone, has been estimated at 18,000*l.* The amount of capital which will thus be withdrawn from trade, to meet the necessary repairs, must cause a check to gardening which will extend, like the radiant rings in water, far beyond the centre of their origin; and this sum is altogether independent of the damage done to private establishments, every one of which, within the circle of the fury of the storm, are alike demolished. It is, indeed, frightful to contemplate the mischief and its effects; the latter may take years to efface, which has thus in a single hour fallen upon gardeners and gardening. We are not alarmists; but it must be borne in mind that we are still, every one, in all situations, and at any hour, subject to a repetition of the same destructive event. A like cause will produce like results. Let us, then, set about devising means to avert such disastrous consequences, with an earnestness commensurate with the vital consequence of the matter; and we heartily solicit the ideas of our correspondents on the subject in all its bearings.

There are three measures which, in connexion, will afford perfect security, and separately deserve the serious consideration of all interested. The first should have attention now that its application is easy: it is the employment of stronger glass than has hitherto been customary. There is no question of the first expense being the least in such a case; our stout sheet glass was comparatively uninjured by the storm, while a neighbour's, scarcely two hundred yards off, where the glazing is done with common crown, had the entire smashed. The second measure is one we have advocated for a length of time, namely, the addition of an outside blind to the roof of every house or pit. The many benefits derivable from the practice we have so frequently urged, that there is no need to repeat them further than in relation to hail. The blinds we would recommend are made to work on the ordinary roller, and run over the roof at a little distance from the rafters, being elevated by means of slight iron rods extended lengthwise of the rafters; the whole is simple and inexpensive, nor can there be a doubt of its effectiveness. These two measures are nearly sufficient in themselves as a complete preventive of injury; and the third, being more comprehensive, we mention it in the way of advice,—take advantage of the insurance societies.

THE VICTORIA PLUM.

A correspondent has asked our opinion of the above, and for some account of its history; the former we are happy to be able to give in the most unqualified favorable manner. We know it to be a most astonishingly free bearer, and, to our taste, of excellent quality. Of its history we have been obliged with the following particulars, by Mr. Denyer himself, in which it will be seen that "honour is given where honour is due." Mr. Denyer takes no more credit to himself than what he is justly entitled to, namely, that of proving the originality of the variety, and providing for the supply of the public. If we were only going to plant two plum trees, the Victoria should be one of them.

"The Denyer's Victoria plum has been fruited by Mr. Myatt, of Camberwell, for upwards of twenty years, by whom it was brought from a cottage garden at Robertsbridge in Sussex, a seedling, and having proved it to be the most certain and free bearing plum known, and of the finest quality, about fourteen years since Mr. Myatt kindly gave me some grafts of this plum, saying it was one that ought to be worked and brought into notice, and a good name given to it. I then grafted a few trees, and planted a two years' trained one against a north-west wall, and, to my astonishment, it bore three fruit the first year, thirty-six the second year, and eighty-four the third year. Having thus proved it, I proposed to Mr. Myatt to take some of the fruit to the horticultural gardens at Chiswick, and he accompanied me, to show Dr. Lindley, to ascertain whether there was in their collection a plum like it. After Mr. Thompson had kindly made a strict search over the stock of plum trees in the garden, and also the book of drawings for fruit, no plum like it could be found, and it was then pronounced to be a distinct variety. I then gave it the name of 'Denyer's Victoria Plum,' and advertised it in the autumn of the same year, and the demand for it has increased every succeeding year."

DESCRIPTIVE LIST OF NEW PLANTS.

LEGUMINOSÆ.—*Decandria Monogynia.*

Daviesia physodes. A very singular species of the very pretty genus *Daviesia,* in habit, as Mr. Bentham well remarks, resembling *Genista Scorpius;* but why named *physodes* by Mr. Cunningham is not apparent, for (unless it be in the fruit, which is, however, not noticed by Mr. Cunningham) there is nothing inflated or bladdery about the plant. The whole is rigid and glaucous; the lower leaves often small and terete, the upper ones oblong and obliquely cuneate, so that the shape a good deal resembles a hatchet, more dilated at the upper angle, mucronated on the other, and marked with two nerves on each side. The flowers are exceedingly handsome, variegated with several colours, orange-red, green, and black, produced copiously on the branches, and they continue a long time in perfection, so that the plant is highly ornamental to the greenhouse in the month of April and May. It is a native of Western Australia. The precise locality where Mr. Cunningham discovered it is not recorded: but Mr. Drummond and Mr. Preiss have detected it in the Swan River settlement; and from seeds sent by the former of these two botanists our plants were reared at the Royal Gardens at Kew.—*Bot. Mag.* 4244.

RUTACEÆ.—*Decandria Monogynia.*

Eriostemon scabrum. The present, till now unpublished, species is a member of an unassuming, but very attractive, genus of hardy greenhouse plants. It has long been in the collection of the Messrs. Loddiges, of the Hackney Nursery, who imported seeds from Sydney, New South Wales, many years ago. Like *E. buxifolium,* it flowers long and very freely in spring and summer; and though its flowers are not so large, it is superior to that species in being devoid of its stiffness and rigidly formal appearance, but has not its lively green foliage. In habit it is rather dwarf, branches much, and in a free and elegant manner. The flowers are pink.—*Pax. Mag. Bot.*

CONVOLVULACEÆ.—*Pentandria Monogynia.*

Calystegia pubescens. This curious plant approaches very nearly to the *C. sepium*, or larger bindweed, of our English hedges ; from which it differs in having firmer and smaller leaves, much narrower bracts, and a fine pubescence spread over every part. It is the first plant of its order that has been mentioned as producing double flowers. They are about as large as those of a double anemone ; but the petals are arranged with the irregularity of the rose ; they are of a pale, very delicate pink, and remain expanded for some days. The calyx is quite unchanged. The exterior petals are very much lacerated and irregular in form ; those next the centre are narrow, drawn together into a kind of cone ; the next central are completely concealed by those without them, and diminish till they are mere scales, analogous to those which may be found in the first buds which burst in the spring. Not a trace can be found of stamens or pistil. The plant was sent from China, by Mr. Fortune, collector to the Horticultural Society, and was received at their garden in June 1844. It is, probably, quite hardy if planted in a dry situation. It requires a rich loamy soil, and is easily increased by the roots, which very much resemble those of the common bindweed. It flowers freely in July and August.—*Bot. Reg.* 42-46.

CINCHONACEÆ.—*Pentandria Monogynia.*

Gardenia florida, var. *Fortuniana.* This fine variety was sent from the north of China by Mr. Fortune. In the Journal of the Horticultural Society is the following account of it :—" The common single and double varieties of this plant are known to every one. That which is now noticed differs merely in the extraordinary size of the flowers, which are nearly four inches in diameter, and in having fine broad leaves, sometimes as much as six inches long. The flowers are pure white, changing to light buff as they go off, and not unlike a very large double Camellia. It is one of the very finest shrubs in cultivation, and ranks on a level with the double-white Camellia, which it equals in the beauty of the flowers and leaves, and infinitely excels in its delicious odour."—*Bot. Reg.* 43-46.

RANUNCULACEÆ.—*Polyandria Polygynia.*

Clematis hexasepala is a New Zealand plant, seeds of which were presented by J. R. Gowen, Esq., in 1844, to the Horticultural Society, in whose Journal the following account is given of it: "This is a little twining plant, with shining, nearly smooth ternate, or biternate leaves, whose petioles twine round any small body with which they may come in contact. The leaflets are cordate-ovate, coarsely serrated, and often three-lobed. The flowers are small, pale green, very sweet-scented, and appear in threes or fours from the axils of the leaves. Their stalks are long and hairy, and each has a pair of small bracts below the middle. The sepals are uniformly six in number, of a narrowly oblong form, and spreading so as to form a small green star. Contrary to the usual structure of the genus, the stamens are constantly six only in number, and about half as long as the sepals. It is a hardy greenhouse plant, requiring a light loamy soil to grow in, and is easily increased by cuttings of the half-ripened wood. It only requires the protection of a cold pit, or frame, during winter, and flowers abundantly in April. It was first noticed by Sir Joseph Banks in 1769."—*Bot. Reg.* 44-46.

TROPÆOLEÆ.—*Octandria Monogynia.*

Tropæolum crenatiflorum. This is another new Peruvian *Indian cress,* introduced by Mr. Veitch, through his collector, Mr. W. Lobb, from Pillao and Chagula, Peru, and may be treated like the other well-known species of the same genus, that is, as hardy during the summer months. Its nearest affinity is, perhaps, with *T. Lobbianum;* but the foliage, the colour of the flowers (pure yellow), the edge of the petals (being notched and toothed), and the relative length of these petals, as compared with the spur, at once distinguish it.—*Bot. Mag.* 4245.

ELÆOCARPEÆ.—*Dodecandria Monogynia.*

Friesia peduncularis. An elegant shrub, from three to six feet high, with something of myrtle-like habit, as seen in our gardens, and with copious drooping or pendent stalks. It is a native of Van Diemen's Land, and requires a cool frame, or greenhouse, for its successful cultivation. It is not improbable that near the coasts of the middle and south of England this pretty plant may be found to brave the winter in the open air. The flowers are pendent and solitary on each peduncle, have a pale green deciduous calyx; their petals are four, broadly obovate, three-lobed, white, with orange spots at the base, and two orange spots in the sinuses of the lobes.—*Bot. Mag.* 4246.

AMARYLLIDACEÆ.—*Hexandria Monogynia.*

Collania Andinamarcana. The original specimen of this beautiful plant was described by the Hon. and Very Rev. Mr. Herbert, from a native sample in my Herbarium, gathered by Mr. Mathews on the lofty mountains of Andinamarca, in Peru. It is a tall, straggling, and, no doubt, on its native hills, a climbing plant (bearing some resemblance to *Convallaria*). The decurved apex of the stem bears a drooping umbel of racemes of flowers, which are also pendent; the three sepals are oblong, straight, orange-red tipped with black; the three petals are straight, spathulate, pale yellow tipped with green, and that green streaked with brown. They are large and very showy.—*Bot. Mag.* 4247.

ACANTHACEÆ.—*Didynamia Angiospermia.*

Asystasia Coromandeliana. A frequent plant in India, according to Dr. Wallich; and the wonder is that it has not before now been introduced into our collections. The Kew Gardens owe their possession of it to Mr. Henderson, of Pine Apple Place, Edgware Road. It flourishes in stove heat, and flowers throughout the autumn, when the large racemes of purple flowers make the plant very attractive.—*Bot. Mag.* 4248.

SCROPHULARINEÆ.—*Didynamia Angiospermia.*

Torenia Asiatica. It is not by any means easy for a painter to do justice to the rich purple-blue tinge of the flowers of this plant; which, with the size of the blossoms, the three dark purple blotches on the pale ground, together with the delicate yellow-green of the rather copious foliage, renders this one of the most lovely plants that has lately been introduced to our stove collections. It is an annual; and we are indebted for the seeds to W. Strachan, Esq., Twickenham, who received them from Curtallam. The plants blossomed through the summer of 1846; and, as the cuttings strike freely, we find ourselves readily able to propagate the species should the parent plants fail to bear seed. Even amidst the splendid display of vegetable productions exhibited at the June show of the Chiswick Gardens, this attracted no small degree of public attention. It seems to have a very extensive range in the East Indies, growing throughout Bengal, in Amboyna, Ceylon, Mergui, Chittagong, Sylhet, on the Madras Peninsula, and Dr. Wright adds, it is widely diffused in alpine regions. The flowers are solitary, borne on axillary peduncles; the calyx is two-lipped, arched or decurved, with three wings which are decurved on the petiole; the corolla large, more than twice as long as the calyx; the tube dark purple, between campanulate and infundibuliform; with a spreading, nearly equal, four-lobed limb, of a delicate purple-blue, pale, with a blotch on three of the lobes.—*Bot. Mag.* 4249.

GESNERIACEÆ.—*Didynamia Angiospermia.*

Alloplectus repens. A pretty Gesneriaceous plant, probably scandent upon the trunks of trees, and rooting among the dead bark and moss. It is a stove plant, native of the damp woods in the ascent of the Sierra Nivada, St. Martha, and was thence sent to the Royal Gardens of Kew, by our collector, Mr. Purdie. Its flowers are bright yellow, produced in February.—*Bot. Mag.* 4250.

ORCHIDACEÆ.—*Gynandria Monandria.*

Anguloa Ruckeri. This charming plant makes the third species now in our gardens of a genus which, in the spring of 1844, was a botanical puzzle. Such is the progress of scientific discovery, when promoted by horticultural enterprise. *A. Ruckeri* is immediately recognized by its flowers having deep crimson spots on a yellow ground, and a deep crimson lip. The form of the latter approaches that of *A. Clowesii;* but it is less hairy, and the lateral lobes are blunt as well as shorter. All the species have been found by the fortunate exertions of Mr. Linden. *Bot. Reg.* 41-46.

Cattleya Lemoniana. To us this appears quite a new and distinct species, remarkable for its short pseudo-bulbs, and long convolute lip, with a convex pallid limb, deeply broken up into a few revolute folds at the edge. Mr. Booth, however, regards it as a variety of *C. labiata,* from which it differs in its short pseudobulbs, apparent want of spathe, and contracted lip, wholly destitute of the rich frill of plaits by which that species is so strikingly distinguished. The specimen from which the accompanying figure and description were taken was imported from the

Brazils in 1842, and flowered for the first time, at Carclew, in September 1845. It requires a warm, damp atmosphere, and attaches itself, by its long ash-coloured roots, either to a wall or branch of an old tree.—*Bot. Reg.* 35-46.

AUTUMNAL MANAGEMENT OF FLORIST FLOWERS.

The following hints, or memoranda, are notes made for the guidance of my own practice; and as they require attention in the course of the present month, they may be of assistance to your calendarial directions.

Auriculas are suffering severely from the effects of the late storm, throughout the greater part of the southern districts, and much care will be necessary to preserve them through the winter. The plants exhibit an appearance of pleuratic debility I never before observed, and on examination it will be found that in many cases the points of the roots are rotting; the cause of which may reasonably be referred to the action of the excessive wet they have been subjected to. In any case, it will be best to stir the surface of the soil frequently, that air may be admitted to the roots, and the removal of decaying leaves must be constantly observed. The sooner preparation is made for the removal of the plants to their winter quarters the better for them; for they are decidedly unsafe under present circumstances, and some nursing will be required to get them again into condition. Plenty of air, with but little water, offer the best chance of recovery.

My *Polyanthuses*, in pots, are in a very nearly similar state, seeming to require much the same treatment. I have found it a good plan, when the soil in a pot has become too wet, to gently lift the ball of earth upwards in the pot, by placing the finger to the orifice at the bottom. It allows a chance for the air to percolate by leaving a vacuity round the sides.

Carnations and *Piccotees* are in excellent order for potting; and it will be well to get this done for them as soon as may be convenient. Let them be placed in small pots filled with rich loam fresh from the common, without any addition, unless its texture may seem to require a little drift sand, or the scrapings of a macadamized road. Before an atom is placed in a pot, let the whole be carefully picked over in search of wireworm and grubs; nor must any trouble be spared on this account; for it should be thought of, that all previous and anticipated success depends most materially upon how the search is conducted, and without extreme vigilance the death of many plants will probably result. After potting, keep the bottom of the pots clear of the ground, that no worms or slugs may gain ingress to torment you through the winter; but let the plants have abundance of air at all times for the next six months, or they will become weak and sickly.

The *Tulip* bed should be made up by mixing the usual soil ready for placing in the bed, which, being emptied of that contained in it through the past year, should have a layer of rotten manure laid in, and the prepared soil placed over it. The roots should be duly arranged at leisure intervals, that when the planting season arrives everything may be ready.

Dahlias should be thinned and tied out. A great error prevails in the ordinary method of doing this. It is quite a mistake to cut the plants so unmercifully as is usual; it is a waste and an injury to allow the branches to grow to a flowering size, merely for the purpose of cutting them away again. Whatever reduction may be necessary, either of stems, leaves, or flowers, should be done when the parts are small. This economises the power of the plant, and, besides, it is more easily performed (with the thumb and finger) than when grown to large size. Every bloom that may be required for exhibiting should be protected in boxes attached to the stalks, or they will not be secure a single hour, either day or night, for the depredators on these flowers are beyond calculation. By the end of the month mulch should be spread over the ground round the stems, lest a severe frost in the next month should injure the crown of the roots. Pot-roots may be dried; unless any are flowering and can be protected, in which case their beauty may be prolonged for a considerable period.

Pinks are great sufferers. The earliest plants which were got out before the storm, have too generally been broken off, and are, consequently, useless for flowering. Those which were still in the striking bed, or where they were first pricked out, may have stood it better. Vacant spaces, originating in whatever cause they may, should be filled up without loss of time, or the plants will not be properly established before the occurrence of frost. It will also be requisite to go over the beds occasionally, and press the soil gently round the stems of those which appear to be loosened by worms.

Pansies may yet be propagated, and cuttings taken and struck early in the month often yield the best flowers in the following spring. I prefer to have thoroughly rooted and established plants to begin the winter with; and, therefore, any which are struck now must be encouraged as much as possible. A south border, with hand-lights over, is, perhaps, the best; and after they are rooted pot them into the smallest pots, and continue them under the glasses for a week or ten days, when they will bear exposure without injury or loss of time.

J. Wood.

GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

Duramen. The central portion, or heartwood of timber trees.

Eborinus. Eburnesis. Of the colour, or consistence, of ivory.

Echinatus. Covered, or thickly set, with strong, straight, and sharp-pointed spines or bristles.

Echinulatus. Coated in like manner, but with smaller prickles.

Effuse. A loose, irregular arrangement of the flower organs, as in the case of a lengthened or one-sided panicle.

Elatus. Tall, possessing a long-jointed loose habit.

Elephantiasis. A diseased state of particular organs, in which they become swollen, and finally fall off.

Ellipsoid. Elliptical. Commonly used as expressive of a rounded oval.

Elongated. Drawn out. When the length of an organ is disproportionately greater than its breadth.

Emarginate. Applied to leaves which, instead of terminating in a pointed apex, have their marginal lines inflexed at the end, and appear to have a small piece notched out of the point.

Embracing. When a leaf clasps the stem to which it is attached by its base, so as partially, or wholly, to surround it.

Embryo. The germ, or rudimental plant, contained in the seed. The undeveloped principle of existence.

Endogenæ. One of the great divisions of the vegetable world. It is that class in which there is no distinction between wood and bark, and in which the cellular tissue and what is properly wood is so mixed as to be scarcely distinguishable; hence the popular name, "soft-wooded." In Endogenæ there are no medullary radiations, seldom any articulation of leaves with the stem, and the veins of the leaves pass in parallel lines from the base to the apex. It is the first remove from mere cellular or cryptogamous plants, and intermediate between them and the Exogenæ or Dicotyledones, in which vegetation assumes the most perfect form.

Endogenous. Belonging to the class Endogenæ.

Enodis. Expressive of the absence of the customary joints or knots.

Ensate. Ensiform. Having the form of a straight sword.

CALENDAR FOR SEPTEMBER.

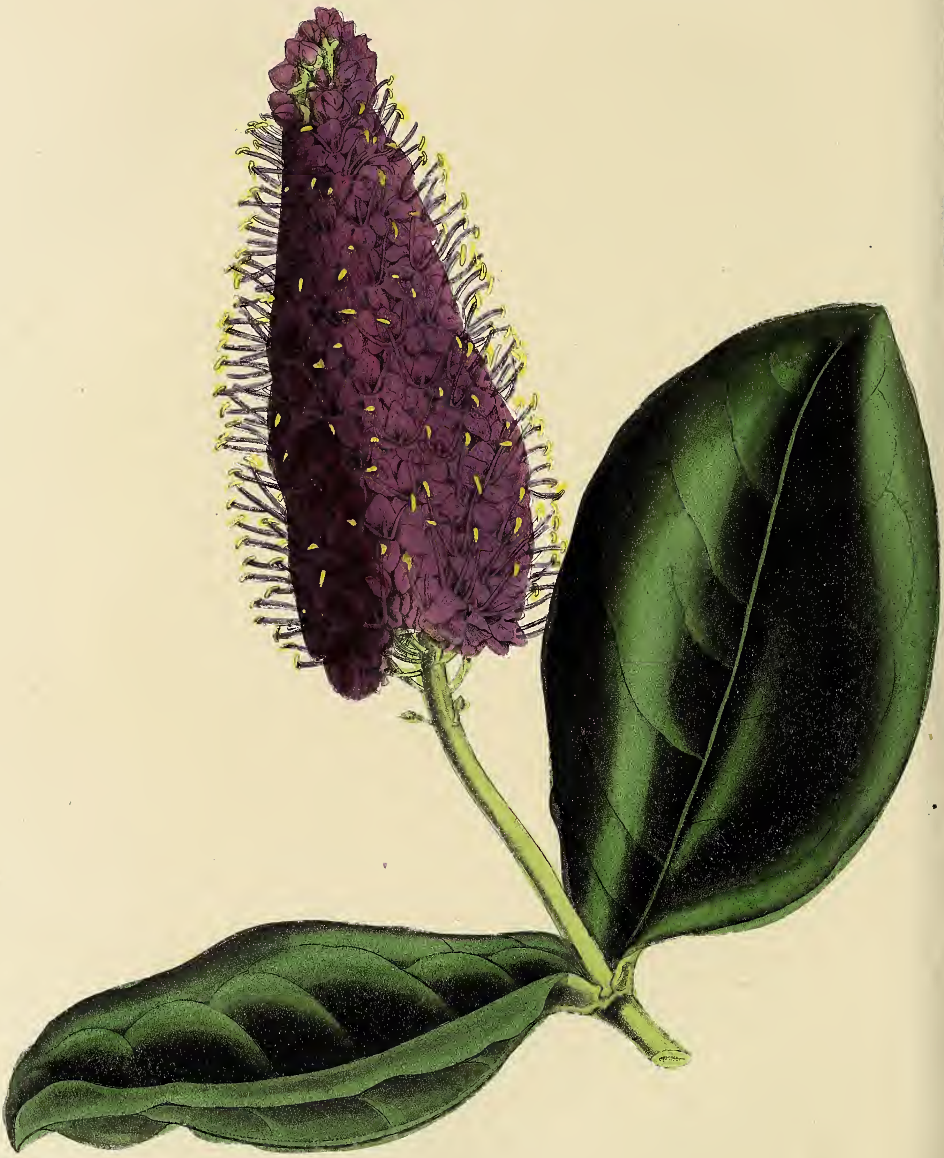
The arrangement of the flower garden for the next year may be considerably simplified by paying attention, at the present time, to the general habits, colours, and peculiarities of the various plants used for decorative purposes. By a selection of those most appropriate, a degree of certainty can be adhered to in propagating a proper number of each of the requisite plants, which will tend greatly to economise room in the various plant structures—a point of importance, even where there is plenty of room. If a list of the various plants be kept, and notes taken of the height, time, and duration of flowering, colour, and other points, a valuable book of reference would be formed, which would be found useful in many ways, especially if the various tints were done in water colours, so as not to have to depend on words for what can hardly be expressed by them. Such a list as this should, of course, contain all the newest things, whether observed at home or abroad. It should also contain observations on the arrangement of colours, with a view to amend or alter their disposition in another season. In connexion with this branch of the subject, a plan of the garden should be prepared, on which the colours may be grouped until a satisfactory arrangement is attained; and then the number of plants required for each bed would give a good idea of how many of each it would be necessary to propagate and keep through the winter, making allowances, of course, for deaths, or for furnishing the common borders, and other purposes. This applies only to the summer bedding plants; but it would be easy, and indeed indispensable, to extend the same practice to the spring crop of bulbs and annuals as well, so as to establish a regular routine in the cropping and management of the flower garden.

The plants in the flower garden will, many of them, now assume a ragged appearance, if not very regularly attended to. They should be kept very clear of dead leaves and flowers; and as soon as they are too far past to be longer ornamental, they should be potted up if wanted, or else destroyed, and the beds should be prepared for the next crop of bulbs, or annuals, for spring flowering, or, if not intended to be so occupied, they should be filled with evergreen shrubs in pots, so as to prevent the garden from having too dreary an appearance during the winter. A good effect may be thus produced by filling only some of the beds, which might be edged with crocus and snowdrop, so as to be very gay at a very early period, while the other beds, filled with bulbs, would succeed them.

All the greenhouse plants must be got into their winter quarters before they receive any injury from frost, or too much wet. Let them be carefully cleaned, staked up, and the pot and mould be examined before they are finally staged, so that the condition of each may be known. Give all the air possible, day and night, as long as the weather permits. Pot hyacinths and other bulbs as soon as they can be obtained, as it is of the first importance to get their pots full of roots before they are forced.

The occupants of the stove should also be treated in a manner according with the decline of the season; the amount of moisture must be reduced in whatever shape it may have been applied, and to meet the chill of evening a slight fire heat will be necessary; the pruning, tying, shifting, and examination mentioned previously, will also require attention in this department. Let the plants receive all the sun-light and a good share of fresh air every fine day, in order to properly mature their new wood, and prepare them for the winter.

D. M.



VERONICA SPECIOSA ROSEA.

London: Groombridge & Sons, Paternoster Row.

THE GENUS VERONICA.

WITH AN ILLUSTRATION OF V. SPECIOSA ROSEA.

In the extensive genus under notice we are presented with an assemblage of near one hundred and fifty species and varieties, scarcely one of which large number but possesses sufficient beauty to make it welcome in some part of the garden. The majority are of European origin, and are consequently hardy; indeed, a considerable proportion are indigenous to our own island, claiming to rank with the most beautiful of our native flowers. From among the hardy class referred to, it would not be difficult to select at least fifty thoroughly distinct and highly ornamental objects, which, was justice done them, would be universally introduced to all cultivated grounds ; but, by a strange fatality, which extends to a great number of really beautiful things, they are neglected without the slightest apparent reason. Blue is the prevailing colour of the genus, produced for the most part in the middle of summer, a circumstance which ought of itself to ensure their adoption, for cold tints are then most desirable, and with difficulty obtained; but though the several shades of this colour may be said to obtain in the genus, it is by no means confined to that alone, for white, pink, red, lilac, and violet are also found in it ; and in addition, there is variety sufficient to please the most fastidious, in foliage, height, habit, and general appearance, so much so, that Veronicas seem created, as it were, to supply the ornamental gardener with the most ample means of attaining a thorough finish in his design.

In addition to the hardy kinds, there are about a dozen which are usually considered and treated as greenhouse plants, though it appears quite probable, nearly or quite all of them will be found, on trial, sufficiently robust to bear the average of our winters. The old *V. dianthifolia,* from New Holland, and the *V. perfoliata,* from New South Wales, will bear a considerable amount of frost, and we have heard of several cases in which the comparatively new *V. speciosa* has been allowed to stand in the open border through the last winter; it was one, truly, that could scarcely be called of average severity, but we have hopes of seeing this fine species included in groups of evergreens, where it is likely it may be preserved without other trouble than an occasional matting. In the mean time, it is well worth the little attention necessary to grow it as a greenhouse plant; the large glossy, rick-looking foliage, surmounted by the freely-produced spikes of flowers, will ever ensure it a place in most collections. An objection may, however, be entertained against this plant, in the want of contrast which exists between the deep colours of both flowers and leaves; the dark purple of the former certainly appears to be deadened by the still darker green of the foliage, and this, when the charm of novelty has worn off, may possibly reduce the estimation and high character it now enjoys. Comparisons are ever useful as leading to new ideas, however odious their effect may be on one side the question: the objection just mentioned never appeared in such strong light as when the variety now figured first reached us, its superiority was immediately manifest; the livelier colour of its flowers gave a warmth and tone to the plant, more and more pleasing, as its absence became apparent in the parent plant.

Veronica speciosa rosea is a seminal variety of the species whose name it bears, obtained in the course of the past year by Mr. John Oates, gardener to Sir Joshua Rowley, Bart., of Tendring Hall, Suffolk, who appears to grow the species extensively for flower gardening purposes. In answer to our inquiries, he obligingly mentions that he has a fine bed of seedlings exceedingly gay, and that he finds the variety *rosea* to flower even more freely than the original species, besides promising to be some degrees hardier. It is decidedly a most valuable acquisition, and one we have much pleasure in having the opportunity of making known; its value, as an exhibition plant, will be readily estimated, and we have Mr. Oates's testimony in favour of its character for bedding out. We presume there will be no difference in the culture of this plant and that of its parent, which will be found to make astonishing progress, under almost any circumstances, if only allowed sufficient root room. When grown in pots, this and the other recent species, *V. Lindleyana* and *salicifolia*, should, as before hinted, be placed in large ones; if healthy young plants are taken in March, and planted in twelve or fourteen-inch pots, with a mixture of peat and loam, continuing them in the greenhouse till May, and then removing them to a sheltered situation out of doors; with the ordinary attention to watering and training, they will form handsome specimens, and flower well towards the close of the season. In the second year, however, they will be much finer; the shoots should be cut back before they commence their seasonal growth, and by shifting the plants in February, and encouraging them through the first stages of their advance, the flowers will be produced in April or May, and a succession may be expected throughout the summer. No plant is of easier management, and few exhibit a more grateful return for extra marks of attention.

We fancy Mr Oates has now in his hands the means of originating many new and pleasing varieties of this plant, for, doubtless, *rosea* will, if seeded, again produce others different from itself; and we may, therefore, reasonably expect several new features in the ornamenting both of greenhouse and flower garden. We hail his first production as a very charming plant, the value of which is greatly enhanced by the probable hope it holds forth of future acquisitions.

EDITOR.

THE MANAGEMENT OF HYACINTHS AND OTHER FORCING BULBS.

THERE are few engaged in a pursuit so varying, and with such multitudinous claims on the attention, allowing only limited intervals for deliberation, as is the case in horticulture, but will acknowledge the benefit of a timely hint bearing on a matter of so much consequence as that which heads this paper, and, was apology necessary, mention might be made of those who attempt for the first time this year to grow their own forced flowers, for whom, indeed, the following remarks are chiefly intended.

Hyacinths form what may be termed the staple of our earliest blossoms; they may be had from December to April in constant succession, with, perhaps, less trouble than would attend the culture of any other plant for so long a period at the most inclement part of the year; hence their value and universal adoption. All bulbous-rooted plants of like nature delight in a rich porous compost, in which their long fleshy roots may find sustenance without the trouble of ramifying their spongioles, a state quite unnatural to them, and only brought about by a paucity of aliment in the medium they are placed in; this is easily provided by mixing a proportion of leaf-mould with half its quantity of rotten hot-bed manure and clean sharp sand. A mixture of this kind will furnish all that is required, and cannot be improved unless the texture of the mass be so light as to dry very rapidly, when the addition of a small proportion of turfy loam may be beneficial; it is not often, however, this will be found necessary. It is a matter of the first consequence to regulate the period of potting by that of the desired time when the plants shall be in bloom, for it is next to impossible that fine flowers should be borne by individuals which have only been placed in earth a week or two before they are subject to the action of heat; they cannot have provided themselves with the means of living, let alone those required to perfect the floral development; their utmost endeavours, the greatest efforts of their nature, are, therefore, altogether abortive, in short, they are rootless, and plants without roots are in a state of nullity as regards development of any kind; but pot them early to allow time for the protrusion of roots, and the result is very different. As a rule, those which are to bloom in December or January should be placed in their pots by the middle of September; those for February, before the end of October; and none later than the middle of November; indeed, the latter will require very cautious treatment as regards their introduction to heat, and it is far better to have them all done together at the earliest convenience.

The mode of potting these plants being peculiar to them may be thus described: place a sufficiency of potsherds in the bottom of the pots to ensure a good drainage, four-inch pots, or those known as forty-eights, are the most suitable size; fill them quite full without pressing the soil, and then place the bulb on the surface, and gently force it downwards until the neck of the bulb is level with the rim of the pot; the earth may be pressed firmly round the base of the root, and a gentle watering completes the operation: having thus completed the number, and properly labelled the whole, remove them to some sheltered spot, standing the pots on a thick layer of ashes, or boards, to prevent the ingress of worms, cover them entirely over to the depth of a foot with fresh leaves ; these will be found preferable to plunging in any other material, as the protection is more complete both against frost and excessive wet, and the genial heat imparted by the leaves is conducive to a vigorous start. In this position they should remain for at least a month or six weeks, so as to become well rooted, before any attempt is made to force them ; it may be necessary to examine them once or twice in the time, and to give them a gentle watering if required, and when taken to the forcing-house, only those which are most forward, both in the production of roots and the advance of the crown, should be selected, leaving the remainder for the next succession.

Before anything more is done with the plants, it will be found of immense advantage to repot them into others a size larger, this supplies fresh soil to the now active roots, at a time when most is required of them, and also affords an opportunity of correcting anything which may be wrong in their manner of growing, or likely to militate against their future advance; the same kind of soil may be used, and when it is done plunge the pots for about half their depth into a moderately warm bottom heat, a temperature of 50° is best to begin with, ascending, in the course of their management, to 60° or 65° according to the state of the weather, and the period they are required to bloom at; the changes, however, must be brought about gradually, for too much excitement at any time will inevitably spoil the plants. The state of the roots must also be thought of; if they are strong and actively progressing, they will, of course, bear a more rapid change than those which are naturally weak. Water must be supplied in moderate quantities whenever it is required, and when the flower spike is rising, a little liquid manure may be indulged in. For these, as for all other forced plants, a damp atmosphere is most essential, both to their growth and, as bearing directly upon it, to the prevention of attacks from insects. Should it happen, from the roots growing faster on one side than the other, that the bulb is forced out of an upright position, it is better, in order to remedy the unsightly appearance caused, to raise the lower side than to attempt to force the other down, which can only be done at the expense of the roots by cramping or breaking them, and therefore injurious to the plant; the bulb may be righted by placing moss under the side it inclines to, and, indeed, were it covered with the same material it would be all the better, and its appearance improved very considerably. When the flowers are expanded, a cooler situation, such as a greenhouse or sitting-room, will preserve their beauty for a longer time, and it is in such places they are generally required. It is essential to observe, on their immediate change, that the checks likely to occur from draughts of cold air, or other means, should be carefully avoided, and that the water they require be slightly warmed, or it may happen that they droop so as never to recover.

There is little real difference in the management of tulips, narcissus, and other similar bulbs, with that already given, except what may occur in the variation of their growths. The single Duc Van Tholl tulip is by far the earliest, and, at the same time, most certain flowerer; it may be had at any time. The best of the double ones is the Tournesol; it is large, bright-coloured, and will bear almost any treatment. In addition to those usually grown, there is a class of early tulips which bear moderate forcing well, and are very showy; they are single, of the general habit of the common late tulips, and, from their rich and varied colours, deserve to be adopted wherever forced flowers are a desideratum. Perhaps the prettiest of this class are such as the following: Claramond, Vestal, Mariage de ma Fille, Vuurberg, the Pottebakkers, and La Candeur; in these we have pure white, yellow, deep red, and striped varieties of every conceivable shade. As regards the narcissi tribe, some little difference should be made with the jonquils; these should always have the bloom stem advanced above the bulb before they are taken to the hot-house, or it is likely they will only produce leaves. Crocus, too, require only the protection of the greenhouse, or a good pit without artificial heat, to enable them to bloom well; indeed, there is a number of dwarf tuberous-rooted plants very desirable to add to the interest of the list by giving variety, and which require but the most trifling attention to have them in bloom in March and following month, or some of them even sooner; as an instance, may be mentioned the Cyclamen, the Dog's-tooth Violet (*Erythronium dens-canis*), double Snowdrops, Turban Ranunculuses, and others, all of which would succeed if potted in autumn, and brought on in a common cold frame, placing them in the greenhouse when the weather becomes severe, and which would tend much to enhance the beauty of the collection in early spring.

There is a subject connected with forced bulbs which often causes disappointment; it being, by many, deemed a wasteful practice to throw the roots away after they have bloomed, attempts are made to grow them a second time in the following season, and for the same purpose; here a great error is committed, as much so as is the practice complained of; the plants, by the forcing process, are thrown into an unnatural condition, which necessarily weakens them very much, and all the attention it will be possible to give them cannot restore in one season their lost vigour, indeed, with some it can never be done to the extent sufficient to warrant their being again employed for such a purpose; still it is not desirable to give them up so easily; with a little care nearly all may be had good enough for decorating the flower-garden, and this is, perhaps, as much as can reasonably be asked of them for at least three or four years. After the blooming is over, the plants should be removed to a cold frame to be nursed for a time till their growth is completed, as on this depends whatever they may do in a future year, and the longer it can be continued by watering and covering up at night, the more strength will the bulbs attain, until, at last, they may be dried and stored away in the usual manner, to be ready for planting in the borders in the following autumn.

Perhaps the best conclusion of this paper will be an arranged list of the most desirable hyacinths, as it is now that purchases are usually made. Before that, however, it may be acceptable to offer a few hints as to their treatment in glasses, a practice deservedly attaining favour, for more elegant or interesting ornaments to a residence can scarcely be found. For the first fortnight after placing the roots in the glasses they should be kept in a closet or some dark place until roots are protruded, as, previous to this, light, instead of benefiting them, has a contrary tendency; but once furnished with roots, the plants cannot have too much. The water should always be slightly warmed when fresh is applied, and it is safer to keep the top of it a quarter of an inch from the base of the bulb, because, should it touch, and there be the least disease in the part, it increases the chances of its extending; fresh water should be given at least twice a week, and every care taken to preserve the plants from frost after they have begun to grow. If the water is hard a small lump of charcoal placed in the glass will assist it, or a grain of nitre may be added. Tulips and other small bulbs may be grown in the same way where it is desired, by fitting a cork to the orifice of the glass, having a hole cut through it to receive the bulb, and allow its roots to reach the water.

DOUBLE RED.	DOUBLE BLUE.	DOUBLE WHITE.
Bouquet Royal.	Blokskerg.	Anna Maria.
Grootvoorst.	Comte de St, Priest.	Duc de Berri.
Marquis de la Coste.	Duc de Normandie.	Heroine.
Milton.	Helicon.	Prince of Waterloo.
Temple of Apollo.	Laurens Coster.	Tour d'Auvergne.
Waterloo.	Prince Albert.	Triumph Blandina.

SINGLE RED.	SINGLE BLUE.	SINGLE WHITE.
Diebits.	Emilius.	Grand Vainqueur.
Johanna Christina.	Grand Vidette.	La Candeur.
LeFrancq deBerkhey.	Gumal.	Prince de Galitzin.
Lord Wellington.	L'Ami du Cœur.	Talleyrand.
M. de Faesch.	Orondates.	Tubiflora.
Princess Royal.	Voltaire.	Voltaire.

DOUBLE YELLOW.	SINGLE YELLOW.
Alexandre le Grand.	King of Holland.
Madame Vestris.	La Pluie d'Or.
Ophir d'Or.	Prince of Orange.

HORTULANUS.

EUPHORBIA JACQUINIFLORA.

THE production of flowers in the winter is a matter of much consequence to the gardener, because they are then more valued, and consequently more often required. Every plant which naturally produces its blossoms at this period, with the least pretensions to beauty, must, therefore, possess peculiar claims to attention; but when we meet with a species having this desirable property combined with true magnificence in its floral organs, what trouble can be deemed too much that will ensure its perfect development; to hesitate on such a subject is not in accordance with the spirit which now leads horticulture, which may be said to have almost arrived at the desirable stage of determining first what is best, and immediately adopting measures for its possession, The subject of this paper is, notwithstanding, an exception; every one acknowledges its beauty, but all complain of its ugly habit; its flowers are the delight of all who see them, but its long naked branches are an abomination in the eyes of a gardener; hundreds would adopt the plant did they believe this unsightly propensity could be remedied, and thousands of plants would be seen enlivening the stove with their richness, through the dreary months of winter, where not a single specimen now exists. Let me explain how far, and in what way, I have succeeded: two years since I procured a cutting in the autumn, and struck it in loam and peat, with a slight admixture of sand, an operation easily effected with the aid of a moderate bottom heat. It was afterwards placed in a forty-eight pot, and in the course of the winter produced a few flowers, which were taken off soon after they expanded, and the plant allowed to rest the remainder of the winter; in the spring I repotted it into a twelve-sized pot, a considerable change certainly, but one which the result fully justified, ample provision being made for drainage, and the plant placed in a mixture of turfy loam, some peat, and a small proportion of silver sand, every attention was given it, and the progress was rapid and satisfactory. During the whole of the summer, as the shoots extended, they were bent downwards and tied, to give it a dwarf appearance, and in the following November it had attained a spherical form of about two feet diameter, and was subsequently covered with its large clusters of brilliant scarlet and orange-coloured blossoms; from the time the first flowers opened, there was a continued succession for a period of nearly six months, and for weeks together it was a mass of colour. I had before seen the plant treated in a severe manner as regards stopping, in order to cause it to assume a bushy aspect, but generally without any good effect, for when the stopping was continued long enough to secure the desired bushiness, the growths were produced so late in the season as to leave no time for their ripening, and the consequence was an abortive attempt to flower, their production being confined to a few of the stronger branches, and the flowers, individually, small and colourless; being aware of these failures, I determined to adopt the more natural method of, first, securing a sufficiency of branches, by taking off the points of the shoots in early spring until enough were protruded, and then allowing them to grow to their full size, with the advantage of having the autumn to ripen in; the consequence, as just described, was an abundance of large and highly-tinted flowers. Through this season its progress has been all that could be wished, the number of shoots is, of course, greater, and in size and strength a similar increase is observable, so that little doubt exists of its attaining nearly double the circumference of last year, without the slightest deviation from the desired circular form. The propagation of this plant is, as before hinted, of the easiest description; cuttings taken any time in the summer strike readily in a gentle heat, and occasionally seeds are produced which make strong flowering plants in one season, if sown as soon as ripe, and treated in all respects as mature plants; I find the species to delight in rich light soil, of the kind described, and will bear a free supply of water in hot weather with much advantage; in the winter, while it is blooming, it should be kept moderately moist, with ordinary stove treatment, and should it be required for any particular occasion, may be safely transferred to the sitting-room or conservatory for several days. All these inducements, together with the ease with which it may be had of handsome proportions, will, I think, when known, cause it to be more generally grown.

G. Wilson.

[This plant (the *Euphorbia fulgens* of Baron Karwinski), together with the well-known *E. splendens,* and *E. Bojeri,* are a set which deserve much at the hands of the cultivator; as our correspondent suggests, they succeed to admiration under liberal treatment. The old-fashioned method of starving such plants upon brick rubbish and gravel is now entirely exploded. Grow them freely in good well-drained soil, and allow a proper period for ripening their wood, and a rich display of blossoms will certainly result. *E. fulgens* makes a pretty appearance when trained upon a cylindrical trellis, care being taken to have the points of the shoots distributed equally over the whole area. *E. splendens* is one of the very best plants we possess; it is greatly improved by a thorough pruning every season immediately after it has flowered; every branch should then be shortened more or less, as may be required to preserve or attain the desired form, the cuts thus made will exude a considerable quantity of milky sap, but an hour or two in the sun will dry it up, and the number of branches will be subsequently increased three or fourfold, a matter of much consequence, as it is on the ends of the branches that flowers are produced. It is well known this plant blooms for a very long period; its flowers are first produced in pairs: these die off, and are succeeded by others borne four together, which, in their turn, give place to a third and generally final succession, when the blossoms are presented in numbers again doubled upon those of the last, or eight together; hence the necessity of encouraging the plant through the several previous phases, a circumstance which should never be lost sight of by those who grow it.—EDITOR.]

ROSES.

As it is only reasonable to suppose that after so fine a summer a reaction of the elements will occur likely to produce much cold in the coming winter, it may not be amiss for all interested in the occupants of a garden, to cast about and prepare the readiest and best means of protection wherever they are likely to be wanted. I am a rose-grower, and have had frequently to bewail the loss of fine varieties from the severity of the weather, having left them to their fate, through a too heedless reliance on the hardy character given with them, or a careless disregard of well-meant warnings, which, in the plenitude of my ignorance, have been set down as mere vapouring; however, experience comes to the assistance of the most foolish, and I now remove every rose likely to be at all tender every autumn, that they may be so placed as to be easily protected, should such a measure prove desirable. All the China varieties and some of the Bourbons are got up carefully in October, and replanted close together in some sheltered part of the garden, placing them in groups as nearly of a height as is possible for the convenience of covering; thus the dwarfs are selected into two divisions, the strong-growing kinds by themselves, and the more dwarf in like manner by themselves; so also the standards and half-standards are stationed respectively apart, the advantage of which is soon experienced when it becomes necessary to thatch them up. At the taking up, all the fibres should be gently disengaged from the soil with each plant, and being properly labelled, they are taken to the protection ground, where a trench is open sufficiently large to receive their roots, and as many as can be conveniently got together are so placed, pressing their heads one into another until the whole are so firmly bound together as to resist the effects of the heaviest wind; the earth is thrown round their stems till it forms a little mound, and being pressed firmly down, throws off the worst of the rain which may fall upon it. In this manner they are left till the occurrence of sharp frost renders it necessary to adopt protection: the best and cheapest means is to bind them round closely with tightly twisted haybands, filling the interior spaces with loose hay; this wards off the action of frost without excluding air, a matter of some consequence, for I find, when covered too closely, so as to raise the circumjacent atmosphere, the buds are likely to start, a partial development takes place, tending to weaken the plants, and therefore to be avoided. The dried fronds of fern are equally good in this respect, but are not so easily packed in a neat manner. It is not advisable to begin this protection till actually necessary, for a few slight frosts will do no injury, and if covered too soon, the wood will have no opportunity to ripen: in the average of seasons it is not required till January, and may usually be dispensed with by the beginning of March, when the roses receive their annual pruning. No apprehension need be felt on account of the removal of the plants, for its recurrence once a year will be found highly beneficial, as it induces a number of small fibres or rootlets to be formed, and these increase at every shift, so that in a short time there is a complete wig of roots to plants that, had they remained in one position, would have had scarce any; the tendency thus given to form roots may be increased and regulated by shortening the ends of the strongest at the time of replanting; indeed, it should receive the proper attention as an important operation, for, besides the foreshortening mentioned, all dead, bruised, or decaying parts, together with suckers, should be taken out, and as the plants are taken to their places the ground should be made up again for them, adding manure or soil as the case may seem to require; and, above all things, taking care to spread out the roots equally on all sides, that the full benefit of the new earth may be felt by the plant.

Having last year a number of China roses in pots beyond what I could accommodate in pits, and still being anxious to preserve them, if possible, I adopted a mode of protecting them similar to that sometimes used with strawberries for forcing; the strongest shoots were shortened in November, and the pots carried to the foot of a wall, and there laid on the sides one on another until a pile four feet high was formed, having the heads of the plants towards the wall, indeed touching it; outside the pots and close to them was built a wall of turf sods, packed firmly together, and continued the length of the row of pots and round the ends to the brick wall, thus inclosing the roses on all sides except the top, where a wide board was laid in a manner to throw off wet. This protection was found fully sufficient to keep them all alive, and there were fewer cases of mildew among them than might reasonably have been expected, the worst of them being confined to the bottom rows; in the spring, when taken out and cut down, they broke amazingly well, on the whole, more vigorously than those which had been nursed in the usual way in brick pits with glazed sashes, where damps prevailed to an alarming extent. I shall never again limit my stock in regard to the pit room I may have, since they can thus easily be preserved.

Franciscus.

ALPINES.

It is pleasing to the admirer of native and unadorned beauty to observe the increasing spread of these lovely little plants through establishments of every grade; those who, a few years since, when alpines were confined to the botanical collection, affected an indifference towards such humble forms, are now among the most earnest in their searches for the little curiosities, and other new cultivators have arisen who seem determined to do justice to their merits: the latter class are considerably on the increase at the present time, and a few short hints as to the requisite management may to them be acceptable; they are, therefore, offered in a spirit of common fellowship by an ardent amateur of the class, who, at his commencement, severely felt the absence of helping advice, through the want of an accessible medium.

It is a singular anomaly in the physiological character of this family, that, though natives of the mountainous districts of Europe, children of the free air, and naturally recipients of strong unobstructed light, they are also, with but few exceptions, among the easiest to be cultivated in the very opposite atmosphere of a suburban situation; their organization appears suited to any extreme, and this provision renders them so desirable, that it is no longer a marvel their adoption should be extending; indeed, it appears quite possible to select a considerable number which would be found to thrive even in the heart of the most populous city.

Alpine plants, in a state of nature, are subject to great atmospheric fluctuations, their only hold, it may be of an impenetrable rock, is the small quantity of debris carried by rain torrents into a little cavity, where the plant afterwards springs up and fixes its firm hold; in such a position it is evidently liable to periodical and perhaps excessive drought, but can never suffer from stagnate moisture; from this circumstance is to be derived a knowledge of the almost only particular point in their culture. In potting, a stratum of nearly a third the depth of the pot should be filled with sherds, stones, or other material that will drain the superincumbent earth, and with the latter, to ensure its porosity, should be mixed several smaller pieces, in number proportionate to the quantity of soil; a close imitation of the natural constituents of the latter may be obtained by mixing loam, leaf-mould and silver sand in equal quantities, and this will be found to grow the majority of the species, though there are a few which require to be placed in bog or peat earth, a difference easily ascertained by reference to their habitats. When planted on rockwork, which is by far the most agreeable mode of viewing them, because it conveys an idea of their respective habits and proper appearance, far beyond that given by the very artificial contour of a garden-pot. Some care should be taken to provide for the then equally essential object, drainage; every cavity intended to receive a plant should have an outlet for superflous water, nor should they in general exceed a few inches in depth, but rather allow them to extend in a lateral direction, because it is in that manner the plants will grow, and but very few of them have roots calculated to penetrate far into the earth in a downward direction; on the contrary, many, such as the Sedums and Saxifrages, will prefer to spread over a bare stone, than to be fed with a quantity of rich, and to them, injurious food. In the arrangement of these plants in a position like that described, where they are supposed to be permanently stationed, it becomes necessary, unless the rockwork is of larger dimensions than can be generally afforded near towns, to place them in contrary order to that which may be considered most natural. The sizes and stature of plants usually increase with the descent from alpine regions to the level or table-land; and if this arrangement was carried out in the artificial one, we should have the smaller plants at the top, with the numerous larger individuals towards the base: convenience and effect, however, forbid this, and we must consequently sacrifice a love of nature, and deviate slightly from her rules, or much of our trouble will be lost, for, with rocks of only moderate proportions, it is certain the minutely beautiful objects which prevail in the class would be utterly lost, both from their position and the overwhelming influence of their more robust neighbours in the lower portion of the structure: these appear sufficient reasons for the departure, and to warrant the recommendation to place the large plants at top, bringing them gradually less as they descend towards the earth. A ready means of fixing the smaller species to projecting angles, where they are best seen, is to mix an equal quantity of loam and fresh cow-dung to the consistence of mortar, with this daub the places destined for the plants, and then spread the latter upon it; the composition will remain damp for a considerable time, perhaps long enough for the plant to establish itself, or is easily kept so, and will afford nourishment to the roots till they are able to seek it for themselves. Wherever it is possible, mounds of rockwork for the reception of these plants should always be raised at least the height of a man, and shaded recesses should be formed to accommodate such as will not endure sunlight, together with small basins of water at the base, unless, indeed, space sufficient for a pool can be afforded, which will materially heighten the effect of the whole; under these circumstances, a pleasing variety may be imparted to the collection by the introduction of ferns, aquatics, and other suitable forms.

There are some species which, from their rarity, or a peculiarity in their character or management, it is desirable to cultivate in pots, that they may have more attention or nursing, if requisite, in winter. The soil and potting, I have before spoken of, and it is only necessary now to caution the beginner against too much kindness; a cold frame is all they can ever require, with a mat thrown over it in the worst weather. Many plants are killed by being watered and shut up too much; let them have air sufficient to dry the foliage every day, and just so much water as will preserve the soil moist, inclining rather to the dry side of the difference in winter, and there need be little fear of mildew or damping among the plants; in summer these may take their places with the others, with all confidence of their doing well.

W. W.

DESCRIPTIVE LIST OF NEW PLANTS.

JASMINACEÆ.—*Diandria Monogynia.*

Jasminum nudiflorum. Here we have another of the interesting plants introduced from China by Mr. Fortune. It is a shrub with angular, deep green, trailing branches, which have little disposition to branch in the first year of their growth. The leaves are shining, deep green, and each consists of three sessile leaflets of an ovate form. They fall off early in the autumn, soon after which they are succeeded by large, yellow, scentless flowers, which grow singly from the buds formed in the axils of the leaves that have previously dropped. The limb of their corolla is about an inch in diameter, and divided into six broad, oblong, blunt, flat segments.

It appears to be a greenhouse plant, and grows freely in almost any sort of soil, especially rough sandy peat, and, being a free winter bloomer, and continuing in flower for a length of time, it will, doubtless, prove a good addition to our greenhouse plants.—*Bot. Reg.* 48-46.

Lardizabalaceæ.—*Monœcia Hexandria.*

Holböllia latifolia. A new hardy, or half-hardy climbing shrub, with ample deep green foliage, from the axils of which are produced clusters of green flowers. It flowered with L. W. Dillwyn Esq., of Sketty Hall, near Swansea, perhaps for the first time in Europe, on a south wall without protection, in the beginning of last March. Mr. Dillwyn informs us that the female blossoms have a faint, sweet smell, such as is common in flowers of the same colour, but this smell is infinitely more powerful in the males, which, towards sunset, fill the air, in favorable weather, for several yards around, with a delicious perfume. It is a native of India, and was named by Dr. Wallich in compliment to Mr. Frederick Louis Holbœle, Superintendent of the Royal Botanic Garden at Copenhagen.—*Bot. Reg.* 49-46.

Liliaceæ.—*Hexandria Monogynia.*

Lilium sanguineum. This is said to be a plant of Japanese origin, and, if so, it is, no doubt, one of the discoveries of Siebold ; but we find no record of it in books. It is remarkable for its dwarfness, not growing more than twelve or eighteen inches high, and for the vivid colour of its large, solitary, orange-red flowers. It might be supposed to be a variety of *L. Thunbergianum,* but that plant has a tall hairy stem bearing several flowers of a larger size, with much shorter stamens, and a less brilliant colour. The divisions of the flower are, moreover, very distinctly stalked, which brings the species nearer to *L. Phila-*

delphicum, from which it is clearly distinguished by its upper leaves not being distinctly verticillate, and by its great woolly honey-furrow. It is a half-hardy bulb, growing freely in a light loamy or peaty soil.—*Bot. Reg.* 50-46.

BRASSICACEÆ.—*Tetradynamia Siliculosa.*

Tonopsidium acaule. This is a charming, little, hardy annual, growing in any rich garden soil, and blooming from April to October. It attains a stature of only a few inches, but produces a profusion of clear lilac flowers during the whole of the summer; it requires rather a moist situation, makes a neat edging to borders in shaded places, and is a capital rockwork plant. It is found wild near Lisbon, in Barbary, and occasionally on the limestone formation of Estramadura. De Candolle considered it a kind of scurvy grass, and referred it to the genus *Cochlearia,* but Reichenbach, perceiving that its radical lies against the back of the cotyledons, and not the edge, converted De Candolle's sectional name of *Tonopsis* into that of *Tonopsidium.*—*Bot. Reg.* 51-46.

MAGNOLIACEÆ.—*Polyandria Polygynia.*

Talauma Candollii. A very charming shrub, whether its foliage, or its flowers, or the fragrance of the blossoms be considered. It is a native of Java, and, therefore, requires the heat of a stove, when it flowers annually about the month of June. When in perfection the flowers are a cream colour, and more or less connivent, but they soon become tawny and more expanded. The plant attains, with us, a height of about four feet, the leaves are from seven inches to a foot long, and the flowers are large, drooping, handsome, and fragrant.—*Bot. Mag.* 4251.

SOLANEÆ.—*Pentandria Monogynia.*

Datura cornigera. This plant is well known as *Brugmansia Knightii.* Dr. Hooker, however, appears to object to the genus *Brugmansia* altogether, and has adopted the above name in the *Bot. Mag.* 4252.

GESNERIACEÆ.—*Didynamia Angiospermia.*

Diastema ochroleuca. A very pretty and ready-flowering gesneriaceous plant, of which tubers were sent to the Royal Gardens of Kew by Mr. Purdie, from the Sierra Nivada of Santa Martha, New Granada. It has an erect, branched, herbaceous stem, the leaves are opposite, hairy, especially above, ovate, acute, wrinkled with veins, paler, and less hairy beneath; the flowers are white, with a streak of yellow in the throat, about the size of those of *Achimenes coccinea,* and are borne on terminal, trichotomously divided panicles. It is a stove plant, and flowered in August, 1846, at Kew. The genus was adopted by Mr. Bentham, and appears to be intermediate between the genera *Achimenes* and *Gesneria.—Bot. Mag.* 4254.

VERBENACEA.—*Didynamia Angiospermia.*

Clerodendron sinuatum. Sent, in July 1846, from the rich collection of Messrs. Lucombe, Pince, and Co., of Exeter, who received it from Sierra Leone, discovered by Mr. Whitfield. It is one of those plants to which a drawing cannot do justice, and whose charm depends on the gracefulness of the entire plant, flowering at an early period, and bearing dense heads of flowers at the extremity of every branch, and these blossoms, too, are highly fragrant, and of the tenderest and purest white. It deserves a place in every stove collection.—*Bot. Mag.* 4255.

GOODENOVEÆ.—*Pentandria Monogynia.*

Leschenaultia splendens. The splendid colour of the flowers of this plant is only to be compared with that of the *Verbena Melindres.* Seeds of it were sent to Messrs. Lucombe, Pince, and Co., by Mr. James Drummond. Two varieties were raised at the same time, the present, and one having broader segments to the corolla, which is also of a deeper but not so bright a scarlet; the latter is called *L. splendens stricta.* In the general structure and size of the flowers, and somewhat in habit, the present species resembles the *L. biloba.* Handsome as is the variety *stricta,* it is far exceeded by the true *splendens,* which is of a more bushy character, and the whole surface is literally covered with its brilliant blossoms, continuing a long time in perfection.—*Bot. Mag.* 4256.

TREMANDRACEÆ.—*Octandria Digynia.*

Tetratheca verticillata. An elegant greenhouse plant, with small foliage and slender branches, loaded with beautiful rosy-purple flowers, which, unlike those of its ally, *T. hirsuta,* remain expanded after once opening. It was raised from seeds collected at the Swan River, by Drummond, in Mr. Low's nursery, and flowered there in February. It is easily grown in loam, leaf-mould, and sandy peat, and will doubtless become a general favorite.—*Pax. Mag. Bot.*

GESNERACEÆ.—*Didynamia Angiospermia.*

Æschynanthus Boschianus. A very handsome species, of slender compact habit, and free to flower. The blossoms are large and richly coloured, the tube and limb scarlet, and the calyx deep reddish purple. It is a native of Java, where it grows as an epiphyte; the plant flowered for the first time in the collection of R. G. Loraine, Esq., of Wallingford, in last March, and has continued in beauty until a late period.—*Pax. Mag. Bot.*

ORCHIDACEÆ.—*Gynandria Monandria.*

Acanthophippium javanicum. This plant, the original species of Blume's genus *Acanthophippium,* was found by its discoverer in the woods on the higher parts of Mount Salak, in Java, where it flowers from February to April. It is a very pretty thing, because of the clear pale purple stripes drawn down the outside of the flowers, and the delicate lilac of the orifice. As a species, it is readily known by its three-lobed lip, having the centre division contracted in the middle, uneven and ovate at the point, and fleshy at the base, with thick fleshy irregularly-toothed sides. It requires the same treatment as the well known *A. bicolor.* Messrs. Loddiges flowered the species for the first time in September, 1844.—*Bot. Reg.*, 47-46.

THUNBERGIA CHRYSOPS.

WHEN you introduced this plant to the notice of the horticultural world, I was much pleased with the description, and accordingly purchased a specimen; it was a fine one, and with attention promised to become all that could be wished. Frequently, however, my hopes were considerably diminished by the asseverations of those who professed to know the plant well—

that it would not flower freely. All affirmed it would grow to any extent, but that the production of blossoms would be but limited.

Being still anxious to retain the plant, I determined to collect what evidence was possible, and, by tracing the effect to the cause, try if by some other than the prevailing management it could not be made to bloom with the desired freedom. My inquiries resulted with the observation that in every case the plant had been subject to influences conducive almost entirely to the production of "wood" alone. It had been grown as far and as fast as it was possible, with the help of a high moist atmosphere, and abundance of root room, but there all management seemed to be at an end. Many cultivators had fine plants so far as size and health was concerned, but not flowering, they seemed to regard it as worthless; and, therefore, gave it no further attention.

Having learned thus much in the spring of the present year, I started my specimen in a small pot, with only a moderate temperature (that of a vinery), where the average heat for the first month did not exceed 55°. By May it had grown considerably, but I was pleased to notice the joints were near to each other, and the plant had an indurated appearance, which promised well; about the time mentioned it was repotted, and placed with a mixture of peat and loam into a twelve-inch pot, the branches being trained over a flat trellis. It was but moderately watered at any time afterwards, and never till it began to droop. During the next two months it stood in a position fully exposed to the sun, for, knowing my proceedings to be of the nature of an experiment, I determined to observe a course as nearly opposite as might well be to that generally adopted.

It was not without trouble that attacks from red spider were repelled, as may be readily imagined from the position and treatment experienced by the plant, notwithstanding which, with frequent heavy applications of the syringe, they were kept down, and the specimen progressed fairly, until by the end of June the blossoms began to expand. The plant was then about fifteen feet in circumference, with healthy deep green leaves, somewhat smaller than the usual size, and in the course of the following month became almost covered with its bright violet and yellow flowers; the succession has been continued up to the present time as freely as could be desired, and I do not despair of retaining it for some time longer. My success may be traced to the following causes—confining the roots in a small pot with only one shifting, refraining altogether from any pruning, and the benefit derived from the uninterrupted influence of the sun. Next season, by having a larger and more mature plant to operate upon, I feel confident of having it in a blooming state at a much earlier period.

M'M., Battersea.

GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

Ephemeral. Ephemerus. Continuing but one day.

Epicarp. The outer coat or covering of a ripe fruit.

Epicarpanthus. Seated above the fruit. Synonymous with "superior." Applied only to the floral organs.

Epichilium. The upper division of the lip of an orchidaceous plant.

Epidermis. Literally the skin, or thin membraneous covering of the stem, leaves, and flowers of all plants.

Epiphyllous. Growing upon a leaf.

Epiphyte. A plant which grows upon another by attachment, but without deriving nourishment therefrom; a circumstance which distinguishes it from the true parasite.

Equinoctial. As applied to plants, signifies those which open and close their flowers at certain regular times.

Equitant. When the leaves at the point of union with the stem embrace each other by overlapping their edges, as is the case with most Iridaceous plants.

Eriophorus. Bearing a thick coat of soft hairs like wool.

Erose. An irregular dentation in the leaves, having the appearance of being bitten or gnawed.

Esculent. Eatable; good for food.

Etiolated. Blanched; whitened by the exclusion of light; drawn up weakly.

Fæcula. The nutritious meal or powder of any plant.

Falcate. Having a semicircular form, like that of a sickle.

Fascicles. Small bundles of root-like appendages.

Fastigate. Conical; tapering to a sharp point.

Favose. Full of small cells, like those of a honeycomb.

Fecundation. The act of making fruitful.

Feroces. Covered with long strong spines.

Filiform. Very long and narrow, like a thread.

Fimbriate. Having a deeply-cut margin; fringed.

Fistula. A lengthened tubular form, like that of a pipe.

Flocci. Small tufts of soft pubescens, like wool.

Florets. Little flowers placed closely together on a common receptacle, as in the dahlia.

Flosculous. Composed of many florets.

Foliaceous. Assuming the form of leaves.

Footstalk. The small stalk which connects either leaves or flowers with their immediate support.

CALENDAR FOR OCTOBER.

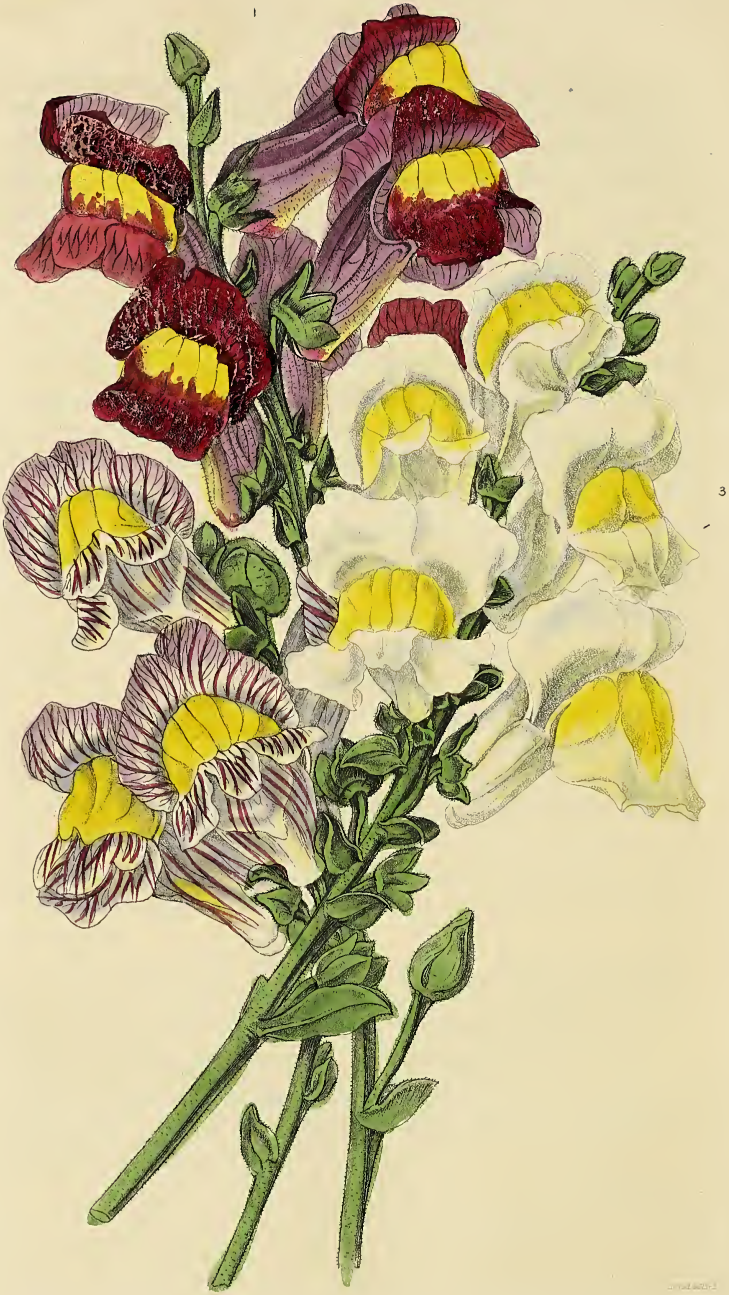
As the flowers decay in the beds they should be cleared away, and such of the latter as are intended to be filled with bulbs to flower in the spring should be prepared for their reception. In order to accomplish this let the old mould be removed entirely, if very poor or exhausted, taking it out to the depth of a foot or eighteen inches. See that the beds are thoroughly drained, so that no water be retained to sour the soil or rot the bulbs. Then fill up the bed to the level of the surrounding walk or grass, or a little higher if the situation be damp. The compost used should be moderately rich, and it should be made of a free open texture by the copious addition of sand, if necessary. If a very rich compost be preferred, it is better to put a layer of well decomposed manure at the bottom of the bed, than to mix it through the whole of the soil; as in the latter case, it is liable to injure the bulbs if placed in too close contact with them. Having filled the bed to the height recommended, cover it over with a layer of sand, or place a handful wherever a bulb is to be set, then set on the bulbs, and entirely envelope them in sand. Afterwards cover the whole with a layer of the compost so that the crown of the bulbs shall be from three to four inches beneath the surface, taking great care not to disturb the bulbs in adding the covering. In case of very severe weather, a covering of long litter should be spread on the bed, and kept in its place by boughs of trees, so as to keep the earth as light as possible over the bulbs. This work should be done as early as the beds can be cleared in the month, as the bulbs will only lose strength, instead of gaining any, by being kept dry and out of the earth.

In the flower garden, in addition to the above, preparations should be made to protect any tender trees or shrubs that may require it. If standing singly, stake them firmly, and tie them up neatly and closely, but not so close as to cause them to damp. A double or triple mat, with a layer of straw, fern, or moss, for the more tender species, will generally be found sufficient, taking care to leave a sufficient opening to the south for the admission of air in favorable weather. Pay particular attention to neatness, cutting down and clearing away all plants as they become shabby, and staking out any, as Chrysanthemums, which may still be in bloom or about to bloom.

In the greenhouse, the plants will require great attention in watering, more especially such as have been standing out. Give no more than is strictly necessary, as they are very susceptible of injury from any excess at this period. All tender stuff of every description, ought to be under cover early in the month, if not sooner; but in whatever structure they may be, they should be freely exposed to light and air, so as to prevent their drawing or damping.

In the stove, water must not be used so freely as heretofore, especially to such plants as are in a state of rest. By continuing or preventing such a state of rest with many plants, such as Achimenes, Gloxinia, Gesnera, Amaryllis, Cactus, the blooming season of any favorite plant may be considerably lengthened, by varying the periods at which individual plants are excited to renew their growth.

D. M.



ANTIRRHINUM.

1 FULGIDA. 2 IBRAHIM PACHA. 3 DELICATA.

London Published by Groombridge & Sons, Paternoster Row.

ANTIRRHINUMS.

WITH AN ILLUSTRATION.

The subjects of illustration chosen for the present occasion belong to a class of plants which, from their adaptability to all the purposes of out-door decoration, the ease with which they are cultivated, the infinite variety of colours they are made to afford, and their general neatness of habit, together with the long continuance of their flowers, have been so universally adopted and admired as to justify a repeated notice in our pages.

Throughout the past summer, with the weather of a character sufficiently torrid to banish from the borders nearly all their usual occupants, one untarnished object of brilliant beauty was present with us from the commencement of the warm season till within the past fortnight, at no time deficient of interest, but ever remarkably rich, pleasing, and varied; need we add, it was a group of snapdragons! the number of flowers cropped from these plants was beyond calculation, still they came in such quick and constant succession as never to be missed, and when the eye, wearied of the surrounding aridity, rested on the cool deep green of their foliage, surmounted by the brilliantly gay or chastened colours of the flowers, a refreshing sense of relief was felt, quite indescribable; Antirrhinums will in future be objects of much regard with us.

To the gardener, anxious to maintain a good display of blossoms, and with but limited means to compass it, the selection of such only as are distinguished by a prolonged state of flowering for the filling of his beds and borders, is a matter of the first consequence, for unless this is attended to, much time and trouble will be expended to gain an unsatisfactory result. In such a position, Antirrhinums may be relied on with a certainty of attaining all that can be wished.

Healthy young plants placed in a border of tolerably good soil in March, will begin to produce flowers in the following June, and continue to do so till October, and the only attention required in return will be an occasional watering and the removal of the decaying flower-stalks; where it is desired to keep the plants in a blooming state as long as possible, this must be particularly observed, for the production of seed which naturally results after flowering is inimical to the development of other flowers, as the plant is unable to perfect both at once. The observation is, of course, unnecessary where high-keeping is aimed at in the flower garden, for there no kind of seed will be allowed to mature, other plants and places being devoted to the purpose; yet, lest any mistake or disappointment should arise, we mention the circumstance for the benefit of those engaged in smaller places. How far the principle may be carried as regards other plants, is a question worthy the attention of all who have the opportunity to test the subject; we know that in very many cases, the result of the prevention to seed, and the simultaneous application of water and other stimulants to a renewed action in the plant, is productive of the desired end, when the time and season are propitious. With the plants in question, however, it is by no means speculative, but a matter of certainty. Besides these means of extending the blooming period, it is easy to have a succession of plants to begin flowering at a later time, and this may be done in a manner to increase not only the floral display, but also the interest of the collection. Let the first crop of flowers be produced by plants of established sorts, propagated in the autumn, by slips from plants that have bloomed the previous season; these are readily struck under a hand-glass any time from August till the end of September, and as easily preserved through the winter in a dry sheltered border, or in pots placed in a cold frame; such plants will be in excellent condition to remove to the borders of the flower garden in spring, and will bloom as described. The second and only other necessary succession should be composed of seedlings; let the seed be sown early in March in a gentle heat, or under hand-glasses on a south border; they will with a little attention be handsome subjects to remove where they are desired to bloom by the end of May, and will commence flowering in August, and last in perfect vigour throughout the autumn; the pleasing anticipation of novelty among these will greatly enhance their value, independent of the display created, and the best of them will furnish cuttings for plants to bloom among the earliest in the following year. It is not, however, absolutely necessary to strike every season for the supply through the next, as the plants may very well be left two or three years in the same place, and only require to be cut into a proper size, and when left in this way have a very good appearance through the winter, fully equal to the small shrubs usually employed to clothe the beds with when cleared of their summer occupants.

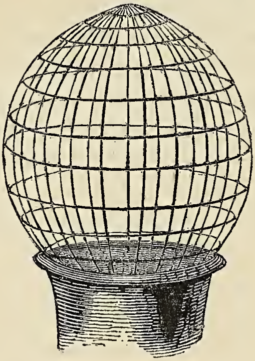
In relation to the production of seedling varieties, we may presume to offer a few words for the guidance of those who delight in the pursuit, as an assistance to their selection of kinds for perpetuating. Hitherto colour and size have been regarded as all that could be required of such flowers; as the plants, however, possess every characteristic of a florist's flower, and the varieties are now becoming so numerous as to threaten an inundation of the market, it will be well to apply some test by which their relative value may be determined. We know something of the horror which the bare mention of "properties" seems to inspire in the feelings of certain growers, but without an ordeal of the kind, all interest in the family will speedily dwindle and decline to a mere apathetical endurance. The standard by which we shall in future determine the merits of such as may be sent us will relate first to the form; and as the face of the flower is the most conspicuous part, it should receive first attention: the sepals or upper division should be free of indenture or notch either on the front or margin, the outline to be rounded horizontally, and the edges continued down on either side to meet those of the lip, which should agree with the upper part in every respect, each being a counterpart of the other; the throat or tube should be proportionately stout and rounded; the mouth or portion which covers the orifice of the tube of the same size as the lip or upper sepals, thus dividing the diameter of the flower into three equal parts, the lip forming one, the mouth another, and the sepals the third portion. The colours should be boldly defined, distinct one from another, and striking; the flower-spike stout, erect, and well filled with blossoms, and the plant of neat compact habit and a copious bloomer.

We are again indebted to Mr. J. Fowle, nurseryman, &c., of Brixton, for the specimens from which our drawing was made; they are seedlings of the present season, selected from his large collection, and have received several prizes at the metropolitan exhibitions of the past summer. EDITOR.

CLIMBING PLANTS AND TRELLISES.

How and by what means a collection of climbing plants should be trained, is a question which has been long agitated without arriving at any satisfactory conclusions, and concerning which very opposite opinions, and arguments to support them, have been adduced. It is held, on the one hand, that the artificial wire trellis in ordinary use destroys the beauty of the plant, by robbing it of the natural freedom which ought to and does properly distinguish the entire class; the strong contrast apparent between the flexuous branches of such a plant and the rigidly formal outline and filling of the trainer possessing so violent a character as to become a complete incongruity. The advocates of neat training and trellises meet this argument by others quite as strongly urged; they say that the act of placing a climbing plant into a pot reduces it to an artificial condition too obvious to be concealed by any mode of training, and therefore it is preferable, by high keeping and elaborate workmanship, to make such a state pleasing without endeavouring to hide its proper character.

Between these conflicting notions we think a middle course may be adopted, which shall embrace all the advantages of either; for with arguments so nicely balanced, it is easier, and generally more profitable, to take the medium ground, than to pin one's ideas upon either extreme. The kind of trainer preferred by the admirers of the natural system is one which shall partake as nearly as possible of the outline and character of the support a climbing plant is most likely to receive in a wild state, as a tree or shrub, and that usually employed is the top of a small spruce fir, or some such thing; against which a great objection may be urged, on account of the skeleton appearance its dead branches, denuded of leaves, must always have; this is as well known to its advocates as to any, and some have gone the length of proposing to have live plants on which to grow the climbers, thus meeting the objection with a vengeance; the struggle for mastery between the two living plants might extend over a season, and for that time would afford an interest of the nature of that excited by a contest between professors of the pugilistic art, but beyond that period it is pretty certain that one or other could not carry on the war, and the return to a dead plant carrying a live one would be equally certain. To this state of things nothing material can be objected when once the trainer is covered, provided its outline is appropriate, and every portion of it clothed; but when a form so strictly formal as that of a fir tree is adopted, and the points of the dead branches are visible in all directions, we really should prefer to have the acknowledged artificial wire to behold than the apparent termination of a death struggle. For fast-growing, extensive, or large-leaved climbers, a support of this kind is decidedly preferable, because they are quickly and effectually made to cover every part; but for smaller-growing, fine-leaved kinds, which from their nature are incapable of thoroughly concealing their means of support, we are yet inclined, for the reasons above stated, to continue an adherence to the wire frame. We remember two very ugly objects which had nearly shaken our faith of the natural supporters from its foundation altogether, in the instance of a Tropæolum and a Zichya made to scramble over and among the dead branches of a spruce, in no part concealing, but rather throwing more conspicuously forward, by the power of contrast, the *very dead* figure of their supports, the brown hue of whose branches seeming actually to extend to the foliage of the climbers themselves, though they were in the best possible health; the beauty of those plants was unquestionably destroyed by the means used to train them. It is, after all, quite certain that the same number of flowers distributed over a sphere will not make the appearance they do when collected upon a plane surface, nor will the leaves or any other part of a plant; and it therefore resolves itself into a question of time as well as taste, to create an equal display on the two forms; the plant on a spheroid will require three times as long as that upon a flat trellis, and all these things require to be thought of when determining in what way any particular subject shall be treated. That there are gross errors committed in the employment of all kinds of trainers, and in wire frames especially, is too evident to require the least confirmation; we sometimes see them as though the wire-work and not the plant was the object to be admired, and as frequently it happens that some great disproportion exists either between the plant and the frame, or in the filling of the latter and its circumference; thus a small plant on a large frame, or more often its opposite, or a slender-stemmed plant with small foliage, like the tropæolum, is placed to grow upon a trellis with meshes far too large; but the most unsightly and frequent of all the mistakes is the employment of a frame whose outline draws to a point at the top; a shape diametrically opposed to that naturally assumed by all climbing plants, which invariably branch most at a distance from the root, and hence the necessity of the contortions witnessed to make the branches cover the bottom of the trainer.



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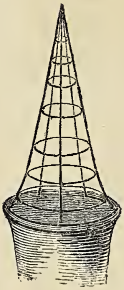

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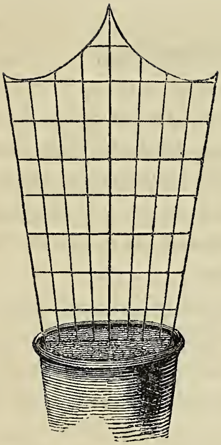
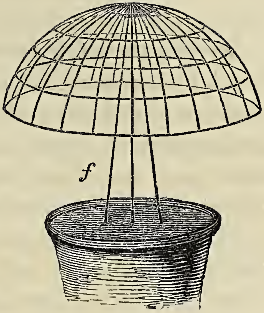
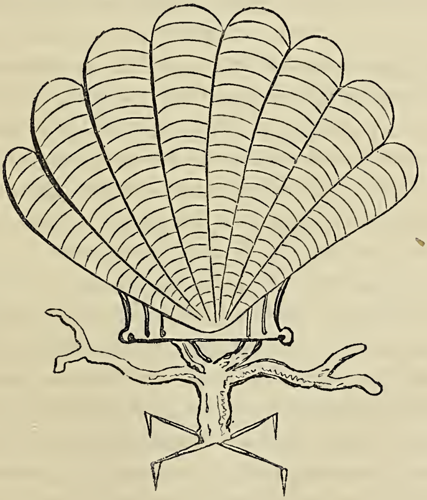
A figure like that annexed (1) is every way preferable, and for the plants mentioned would be unexceptionable; its obvious superiority over the pointed one (2) scarcely needs pointing to. The latter could be employed only for subscandent specimens, which branch closely from the base of their stems, and would perhaps be better without a support of the kind, indeed we introduce without the slightest intention to recommend the form, but rather to show the advantages of its opposite. There is a wide field for the fancy to range in at pleasure in the designs for the trainers of this kind, and the only restrictions necessary to be observed are, that the fashion of the article be made subservient to its utility, by paying regard to the character of the plant it is intended to support. Those most commonly used are remarkable for their simplicity, like the subjoined, and this, with attention to their appropriate character, perhaps ought to be the leading feature, lest the eye is taken rather from the admiration of the plant to contemplate the elaborate excellence of the frame,





for it should certainly be considered they represent only a means, and not the end desired; it is indeed a useless waste of trouble to expend it on a subject which, if properly treated, is completely hid from observation; but there are certain plants which never completely envelope their support, and to such it may be necessary and fit to devote a highly-finished pattern, so that the subject and its support may form a handsome whole.



THE CULTURE OF INDIAN AZALEAS.

Within these few years the varieties of the *Azalea indica* have multiplied to an extent, and in such pleasing diversity, that their presence is now universally expected in every collection of greenhouse plants. A few hints as to the best mode of managing them may, therefore, possess sufficient interest to engage the attention of those about to adopt their culture.

To form a just estimate of the splendour of this section of the family, a visit to the early metropolitan exhibitions is necessary, where from one to two hundred magnificent specimens are frequently collected in all the richness of unequalled vigour, clothed in every part with blossoms varying from the purest white through every conceivable shade of pink, red, lilac, and purple, to even a glowing scarlet; many of the plants there seen are of a size requiring two or three men to lift, and completely covered with their specious flowers. Once seen in the condition there exhibited, the recollection will possess the most indifferent, and I have no doubt, that from such a circumstance may be dated the rise of many collections; the beholders are delighted and naturally desire the possession of so much magnificence.

How to grow them in a manner to ensure the coveted display of flowers will be my object to explain in the present paper.

Azaleas delight in sandy peat, as it is termed in gardens; but some little practice, with a good deal of care, is required to determine on the exact kind of sandy peat that will suit them best; heath soil or peat varies as much in consistence and quality as perhaps any description of soil that can be named; the proper kind is of medium texture, of a deep brown, full of small fibres, but not usually having much sand mixed with it; the naturally sandy peat is generally too poor and deficient of nutriment to grow any plants well, and that which is distinguished by a black sooty colour is invariably soured with stagnant water, and altogether unfit for potting; good peat has an agreeable scent, and a peculiar feeling to the hand, which practice will soon render so familiar, that by it alone many gardeners will determine on the quality of the soil they are using; the deficiency of sand is easily made up by mixing with it about a third of its quantity of silver sand, and this thoroughly mixed, without breaking the peat too small, is the best compost that can be given them; young plants require a larger proportion of sand, and as much as one-half will be required for seedlings and recent cuttings. To begin with such plants as are usually purchased, say in sixty or forty-eight-sized pots, these should be repotted in February, the points of their shoots taken off, and the roots plunged, into a moderate bottom heat, this will speedily induce them to break out into a strong growth, and will save nearly two seasons in getting them to a blooming size; it will be necessary, in all probability, if the plants are doing well, to stop the new shoots twice between the time they are placed in heat and the middle of the following June, when they should be placed in a shaded position out of doors, where they will form another growth, and ripen the whole of the season's accession in a fit manner to meet the winter. In October or earlier, according to the state of the weather, they should be taken into the house, and in the succeeding year receive again exactly the same treatment, not allowing them to flower till the third season, when they should have reached a diameter of a couple of feet, and will begin to assume a regular form, to be determined according to the proprietor's taste. In the spring, of this (the third) year, instead of being taken into heat to form new shoots, the plants should be continued in the green-house in a low and very steady temperature; for the fluctuations between excessive heat and great cold often paralyse the system of such plants, and they consequently lose both flowers and foliage: a similar result may also be expected unless they are regularly attended with water, particularly at this season; they should be constantly but moderately moist, or the bloom-buds will inevitably prove abortive. When the flowers are expanded the plants should be kept in a dry cool atmosphere, shaded from sudden and powerful sun-bursts; but as soon as it is over, and the new shoots begin to appear, they should be repotted, using rather large pots to increase the strength of the entire plant; a moderately elevated temperature of about 55° should be employed through the first growth, which will occupy till the middle of July, and being then nearly complete, the plant may be taken out of doors and stood under the shade of a north wall, where they are free of the drips from trees, and unless naturally shaded, provision should be made by means of canvas coverings to exclude powerful sunlight and heavy rains. It is necessary, while the plants are in this position, to preserve a moist atmosphere about them in dry weather, by watering not only the plants and the soil in the pots, but the ground on which they stand; here they will form another shorter growth, which is that most likely to contain the flower-buds, and when this is nearly completed much of the water hitherto given should be withheld, placing the plants more fully in the sun and air, and merely keeping the soil just sufficiently damp to prevent flagging. By the usual time for removing these plants to the greenhouse, the buds will be sufficiently large to be felt with the thumb and finger, and it is then only necessary to keep them regularly supplied with a moderate quantity of moisture, and protection from frost, to ensure the development of so many flowers as are then formed. It is entirely on the short second growth that the blooming depends, and the great object should be to have that matured as early in August as may be possible, that sufficient time may remain to form the embryo flowers.

HORTULANUS.

THE HISTORY AND CULTURE OF THE FUCHSIA.

READ BEFORE THE CLAPHAM GARDENERS' SOCIETY.

ACCORDING to promise, I intend this evening, to the best of my abilities, to tell you all I know respecting the history, description, and cultivation of the Fuchsia. I trust that all will endeavour to add any practical statements they may possess thereto, for in my opinion the real value of mutual instruction is to discuss the subject, and ask ourselves whether what we have heard entirely agrees with our individual practice, or if not, whether any remark made is worthy of a trial by those who may have hitherto been successful cultivators of the graceful Fuchsia.

In the first place, I will say a few words respecting the introduction of the plant. It was brought from *abroad*, I believe Mexico, by a seaman, who presented it to his mother some time about the year 1780; the plant was placed in the window, when it attracted the notice of a gentleman who was riding in the locality (Limehouse); in a few days after he first saw the plant, he had occasion to visit Messrs. Lee's nursery at Hammersmith, where, after viewing the thousands of plants in that establishment, he distinctly told Mr. Lee he had seen a much more beautiful plant in an old woman's window the other day than he had seen in his (Mr. Lee's) extensive collection; well, Mr. Lee thought, to use his own expression, that the gentleman had over-estimated the beauty of the plant when he pronounced it to excel all he had seen, but when he told Mr. Lee it was a dwarf bushy plant, completely loaded with crimson flowers, exactly the shape of ladies' ear-rings, he began to think it was some novelty, and inquired in what locality he had seen it, and being answered satisfactorily, after the departure of the gentleman, Mr. Lee went and found the plant in question; inquired of the owner the price, who told him her son had brought it home with him in his last voyage, and would not part with it for the "Indies of gold," because she never looked at the plant without thinking of her son. But Mr. Lee was so struck with the beauties of the plant, that he would not take a denial, and offered her £20—but no, nor £50 would not buy it; however, he eventually was the lucky purchaser of it for something like 80 guineas. He named it Coccinea, and it was the admiration of every one who saw it; he got orders for 300 plants at a guinea each—so it turned out a very good speculation.

Since that time there have been introduced many species, for instance, *excorticata, fulgens, cordata, splendens, fulgens, corymbiflora,* and *serratifolia,* and, I need scarcely tell you, many hundred varieties.

To describe the properties of the Fuchsia is on my part presumption, as most of you know as well, or better than myself, but for the matter of form I will state to you my notions of perfection. In the first place, I consider all the lately introduced species are too luxuriant in growth, and have not enough inflorescence, therefore, I would prefer the habit of plant to be that of the Globosa Major, and the flower the same shape before it opens, but the sepals should reflex much more to show the corolla, which should always be distinct in colour to the sepals; the four divisions of the corolla should be so arranged as to form a bell;

the stamens should extend from the corolla to be seen to advantage, and the style or pistil still farther; as regards the size of the flower, the larger the better, so long as the parts are proportionate, and the foot-stalks long and strong enough to support them gracefully. For my own part, I shall not be at all surprised to see Fuchsias in a few years three times the size we now have them.

I have already stated the corolla and sepals should be distinct in colour; now in most of them this is the case, but in a very slight degree; the contrast should be very striking, such as pure white tube and sepals, with deep purple corolla, or deep crimson tube and sepals, and white corolla: any seedlings of this character would be acquisitions which I should like to possess.

Before entering into the details of the cultivation of the Fuchsia, I will say a few words respecting the propagation, chiefly as it regards the different seasons for this operation; for instance, to obtain fine specimens for exhibition in the month of May, cuttings should be taken from plants that have not bloomed, in the month of September, struck in the usual way, and kept growing all the winter in a temperature ranging from 56 to 60°; by taking cuttings at the time I have just mentioned, plants 6, 7, or 8 feet high, according to their different habits, may be obtained in the highest perfection in the month of May. Under even judicious management, in the course of six weeks these specimens, which were without fault in May, become languid on account of the numberless flowers they have produced: so that, as a matter of course, to have a fine exhibition through the season, you must have succession plants. In order to obtain this object, propagate the second stock by putting in cuttings in December, or if you buy plants, do so a month later; and for the third batch have young plants in the middle of April, which will keep up a show till October, so that by three sets of plants you will have a fine show for six months, beginning in May.

The "one-shift system" of cultivation may be adopted in the potting of Fuchsias, but I do not altogether recommend it: the best plan is a progressive one, say from sixties, thirty-twos, sixteens, and eights, which they ought to have to grow them to perfection. The Fuchsia is a plant of such easy culture, that they will grow in almost any good garden mould, yet in this instance *soil* is a most important agent, and I particularly beg to call attention to it, as I believe I differ from many cultivators on this point, in so far that I use no loam. Instead of the usual compost, I would recommend equal parts of well decomposed cow dung, leaf-mould, and peat, to which add half a peck of Riegate sand to one barrowful of the mixed compost; sift it through a very coarse sieve for the first potting, that is in thirty-two-sized pots, but for the second and third potting, merely chop it up; be particular to have free drainage, for this is essential to all plants; now after the plant has been potted the last time, and is beginning to fill the pot with roots, I would recommend a layer of fresh sheep dung on the surface, and on that a layer of nice green moss; if you have never tried this plan you will be astonished at the effect, as it draws the roots through the sheep dung into the moss, which supports the plant very much at this time; in addition, when the plant begins to bloom, water it twice a week with liquid manure. The above remarks are more adapted for the high coloured Fuchsias; the light varieties do not require such stimulants, as manure, either fluid or solid, tends to flush the colours.

For one variety, *Venus victrix,* a universal favorite, I would recommend peat and sand only, in fact, they all grow fast enough in peat and sand, but do not hold their flowers; the effect of the peat in this variety is that it comes decidedly lighter. I would also recommend the partial shading of Fuchsias, more particularly the light ones.

I have now stated the plan by which I have produced tolerably good specimens, and have full confidence in recommending the foregoing remarks to your consideration.

It will not be out of place to offer a few words on hybridizing, which in my humble opinion ought to devolve more upon the gardener than is generally the case, because he has greater facilities than nurserymen, and he might make it a source of profit to himself; indeed, I should like to see more hybridizing, and less propagating among gardeners, as I feel confident it would be more beneficial to both parties. It would be ridiculous on my part to attempt to instruct you in this operation, only endeavour to have unique habits of plant, and the greatest possible contrast of colour in the flowers, and as soon as the seed is ripe, take it from the fruit with the point of a knife, and dibble each seed the sixteenth of an inch into a pot of *white sand,* cover the seed with a little moss, and place the pot in a gentle hotbed; when the seed is just vegetated take each seedling with the point of a knife, and prick them out in very sandy soil, place them on the top shelf of a stove, and keep them shaded, should the sun be powerful. By sowing the seed as soon as ripe, you get the seedlings to bloom in time to thoroughly test their properties.

E. F. Fairbairn.

THE GENUS PIMELEA.

Our greenhouse collections are very greatly indebted to the exertions of botanists and travellers in Australasia, and that part of the southern hemisphere, as so many beautiful objects have been derived from thence; but in no instance has the expectations of cultivators been more fully realized than in the genus under notice. We were told by Mr. Browne some years before the majority were known to us, that very handsome subjects of the class were in store, and in every case yet introduced it has been found to be perfectly correct. It is true from among the number of species (thirty) now cultivated in our gardens, we may select some that are more beautiful than the remainder; but by comparison alone is this effected, for there really is not one of the family but deserves a place wherever room can be afforded it.

Pimeleas succeed to admiration when grown upon what is termed the "large shift system," that is, the transfer of a young plant from a small pot into a larger one at once, and the soil should be a mixture of peat, loam, and silver sand, in about equal quantities; the hole in the bottom of the pot should be broken to near a third of the diameter of the bottom; for it is very seldom they are made large enough, and yet it is most essential for the escape of superfluous water; over this hole let a hollow piece of broken pot be placed so as to cover it, and round and above it a stratum of potsherds of three inches in thickness, then a layer of the roughest portions of the peat, and on it the compost previously described, mixing with it, as the process goes on, a number of small lumps of charcoal, these keep the mass open and porous, consequently assisting very eminently in the drainage so essential to the health of the plant; in potting the base of the plant's stem should be kept a little above the level of the surrounding soil, so that, when finished, it may stand on the top of a little mound sufficiently elevated to throw the water from immediate contact with it: this is deserving particular care with the species *P. spectabilis,* or others that are found like it to be subject to sudden deaths. When placed in its pot, the plant should have the points of its shoots taken off, and the whole of them spread out in a manner to form the foundation of the future shape it is desired to assume; it will also be necessary to pay much attention to this stopping and training until the plant has arrived at maturity, for all of them are naturally inclined to bloom so much, that if left to themselves a great share of the vigour a young specimen should possess will be expended in the production of flowers, to the manifest prevention of its progress, and the weakening of its shoots; it is far better to encourage the plant to grow for the first two seasons, and then have a fine display of flowers, than to allow it to bloom before maturity, bringing but a few at a time, and ending in a stunted-looking subject at last.

For the summer season, a common pit or a sheltered part of the garden is most appropriate for the whole of the family, and in this position they will be required to be "stopped" by pinching off the terminal bud in each shoot, at least three times in the course of the season, but this should not be continued later than the end of the September, unless the plants are desired to bloom at a late period in the spring. During the winter they should be kept in an airy part of the greenhouse, and have a moderate supply of water; though they are not liable to injury from this cause, nor are they subject to attacks of insects, mildew, or any of the thousand ills that exercise the patience of a gardener with most part of his charge, and on this account are well suited for an amateur's collection, merely requiring to be kept from the frost, and to have plenty of air whenever it can be admitted. Where very fine specimens are desired, it is advisable to prevent the blooming until the required size is attained, as it is so much time gained, but as this is entirely a matter of taste or convenience, I may state it is only necessary to desist from the removal of the terminal buds to ensure a head of flowers upon the points of nearly every shoot. Thus with a few of these plants, requiring only the simplest management (for if potted as described at the beginning of this paper, it will not be necessary to remove them for three years), a beautiful display of flowers may be had from February through the greater part of the summer. The following are sure to please, and deserve a place in every greenhouse: *spectabilis, decussata, Hendersonii, linifolia, rosea,* and *nana.*

J. Robertson.

GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

Frond. The foliaceous part of ferns.

Frutescent, Fruticose. Having the form or general appearance of a shrub.

Fugacious. Lasting only a short time.

Fulvous. Yellowish brown; tawny.

Fungous. Having the character of, or belonging to the family of mushrooms.

Furcate. Divided into two distinct parts; forked.

Furfuraceous. Covered with a mealy substance.

Fuscous. Dark brown, or a mixture of black and brown.

Fusiform. Having an attenuated parallel form like a spindle.

Galea. A helmet; the upper lip of a ringent flower like that of the Aconite.

Galeate. Having the upper division of the corolla brought forward like a helmet.

Gemmæ. Leaf-buds, in contradistinction to flower-buds.

Germen. The imperfect seed-vessel, or ovarium.

Germination. The protrusion of the radicle, or first action of vitality in a seed.

Gibbous. Swollen in places; rounded.

Glabrous. Smooth.

Gladiate. Applied to leaves formed like a straight sword.

Glaucous. Having a hoary appearance, whether white, blueish, or gray. An example is found in the under side of the leaves of the aspen, and in the bark of its trunk.

Globose. Having a rounded or spherical outline.

PLANTING BULBS.

The month of November is usually received as the most proper time for planting the majority of bulbous-rooted plants: a word or two as to the manner of doing it may therefore be, at least, in season. Plants of this class afford a very large proportion of the expectant display in the early part of the succeeding year, and consequently deserve our best attention; yet how seldom are they regarded with the proper care except just at the time of flowering. And as respects the planting, nine times out of ten, it is done in a manner that would prove fatal to the greater part of far less valuable forms; a hole made with the dibble into which the bulb is thrust, without any other apparent desire than to place them out of sight, is about the sum of attention they receive in this very important operation. Every bulbous-rooted plant should have at least equal facilities for the spread of its roots as is given to plants in pots, and the only way to ensure this is to thoroughly dig the ground in which they are to be placed, for a depth proportionate to the strength of the plants intended to occupy it, and in the operation of planting, the surface of the bed should, in every case, be removed to the required depth, so that the bulb may be placed in its position, and afterwards surrounded by loose friable earth; this rule ought to be observed from the little snowdrop upwards to the tulip, iris, or lily. In the opposite case of planting with the dibble, the soil is compressed on all sides, and if of an adhesive nature, is a receptacle for water, which is necessarily retained to the utter destruction of the roots. As a rule then, let me urge that all bulbs be planted in loose soil, by removing the surface over the whole of the space they are intended to fill, which, after they are properly placed, should be returned as lightly as possible, and thus left; it is then unnecessary to plant so deep as is usual, because frost does not penetrate so far or so fast in ground of this description as in that of closer texture, and the work may also be done, not only better but much quicker.

T. L.

DESCRIPTIVE LIST OF NEW PLANTS.

NYMPHÆACEÆ.—*Polyandria Monogynia.*

Nymphæa dentata. From the rich collection of Messrs. Lucombe, Pince, & Co., Exeter. The roots were brought from Sierra Leone, by Mr. Whitfield, and produced their handsome flowers in the aquarium of the stove, in August, 1846. Aquatic plants are, generally speaking, widely dispersed, and not a little variable, so that it behoves us to adopt new species among them with great caution. There can be no doubt that the plant here figured is nearly allied to the celebrated *Nymphæa lotus,* an inhabitant of the Nile, and to *N. thermalis,* a native of Hungary. It seems to be unquestionably the *N. dentata* of Schumacher and Thonning, which is a native of still waters on the coast of Guinea; and we have therefore so called it. The singularly prominent and glabrous venation on the under side of the leaf (similar to that of *Euryale ferox* and of the *Victoria regia*), the large white flowers, and the calyx striped green and white, together with the white base of the calyx, and the peculiar contraction there, are characteristic of the present species.—*Bot. Mag.* 4257.

LEGUMINOSÆ.—*Decandria Monogynia.*

Gompholobium venustum. A lovely greenhouse plant, from South-west Australia, first detected by Mr. Brown; Mr. Fraser gathered it in King George's Sound, and Mr. Drummond sends specimens and seeds from the Swan River settlement. From the latter Messrs. Lucombe and Pince have raised plants which produced their copious corymbs of rich purple flowers in July, 1845. The plant attains a height of a foot or more, its branches are terete, long, and flexuous, thinly clad with glabrous pinnate leaves, which are very narrow, almost filiform. Its flowers are produced in terminal pedunculated corymbs, of a rich rose purple colour. —*Bot. Mag.* 4258.

RANUNCULACEÆ.—*Polyandria Polygynia.*

Clematis smilacifolia. A fine but very little known species of "Traveller's Joy," with large scandent stems, handsome undivided leaves, marked with from five to seven nerves, much resembling those of some *Smilax,* large paniculated racemes of diœcious or monœcious flowers, having singularly revolute sepals, dark rusty brown, and downy without, almost black, and glabrous within. It is a stove plant, flowering in June and July, and was introduced from Java.—*Bot. Mag.* 4259.

CYRTANDRACEÆ.—*Didynamia Angiospermia.*

Æschinanthus Lobbianus. A very splendid species, imported by Mr. Vietch, nurseryman, of Exeter, through the medium of his collector, Mr. Thomas Lobb, from Java. It is one of the most striking plants in a stove, from its epiphytal character, and the strong contrast between the purplish-black calyx and the brilliant scarlet of the corolla. It flowers from June to August. —*Bot. Mag.* 4260.

MALVACEÆ.—*Monadelphia Polyandria.*

Fugosia hakeæfolia. A lovely hibiscoid plant, flowering at an early period of growth, bearing copious large blossoms of a rich lilac purple, with a deep red purple eye, surrounding the long staminal column, and these flowers, contrary to what is usual in the hibiscus family, remaining many days expanded. This most desirable shrub was introduced by Messrs. Lucombe and Pince, being raised by them from Swan River seeds in the spring of 1846. In the summer the plants flowered profusely.—*Bot. Mag.* 4261.

MELASTOMACEÆ.—*Decandria Monogynia.*

Pleroma elegans. A plant of great beauty, with copious, glossy, strong-nerved foliage, and flowers of a large size and peculiarly splendid colour, to the rich velvety purple of whose hue no pencil can do justice. It is a native of the Organ mountains, growing at an elevation of 4500 feet, where it was first discovered by Mr. Gardner, and subsequently by Mr. W. Lobb, who sent it to Mr. Vietch. In that gentleman's nursery it bore its splendid blossoms in June, 1846.—*Bot. Mag.* 4262.

APOCYNACEÆ.—*Pentandria Monogynia.*

Adenium Honghel. This curious thing flowered in the garden of the Horticultural Society in June last, having been presented to that establishment by the Court of Directors of the East India Company, with other singular plants from Aden. It forms one or two fleshy stems, like those of a Plumieria, on the top of a club-footed protuberance, and these stems divide sparingly into a few dumpy branches, each bearing two or three leaves only. Its rate of growth is so slow, that half a century is not too great an age to assign to an individual scarce a foot high. Its appearance is the more singular, because from its leafless, stunted branches there appear many very handsome rose-coloured flowers, bordered with crimson, and fully two inches long. According to Alphonse Decandolle, this shrub is found in dry places in Wallo and Senegambia, where it is commonly called Honghel; we also have it from the late Mr. Forbes, who found it at Delagoa Bay. At present little is known of the habit of this; but it seems to be a plant of easy culture, requiring a dry stove, where it can be fully exposed to bright sunshine. It grows well in a mixture of peat, loam, and sand, when the pot is well drained.

FABACEÆ.—*Monadelphia Decandria.*

Calycotome spinosa. Everybody who cultivates hardy shrubs knows how difficult it is to settle what is a Genista and what a Cytissus by the old definitions to be found in books, and this difficulty has been increased by the way in which the species have been transferred from one to the other by systematical botanists. This has arisen from the original adoption of bad marks of distinction, unsuited to the purpose for which they were employed, and the unscientific dread of "innovation," even where most required. This feeling led to the rejection of Link's genus *Calycotome,* although it was perfectly natural, and not to be confused with anything else, and notwithstanding the evident advantage of one well-defined group from a mass of species collected together by vague characters. Mr. Bentham, however, has now accepted it, and no doubt can exist of the propriety of doing so, whether the technical character (deciduous teeth, and a truncated membranous edge to a calyx subtended by a bract) or the habit (stiff spiny yellow-flowered bushes) be regarded. In like manner we look forward with confidence to the reception of Boissier's genus *Retama* for Spartiums like *S. monospermum,* of Griesbach's *Syspone* for *Genista saggitalis,* of the same author's *Lembotropis* for *Cytisus nigricans,* and even to the restoration of the ancient genus *Laburnum.* *C. spinosa* is a pretty shrub capable of withstanding the ordinary winters in the open border, but injured by severe ones; it has dense spikes of deep yellow flowers, and grows freely in any dry loamy soil, and flowers in June. It occurs in a wild state in various parts of the south of Europe and Barbary, on stony or rocky hills.—*Bot. Reg.* 55-46.

PRIMULACEÆ.—*Pentandria Monogynia.*

Cyclamen littorale. Roots of this plant, collected, we believe, at the Lake of Como, were presented by Mr. Bentham to the Horticultural Society. It has short deep pink flowers, somewhat like those of *C. coum,* and is as hardy as any of the sorts; it thrives in sandy loam and leaf-mould, but can only be multiplied by seeds.—*Bot. Reg.* 56-46.

ORCHIDACEÆ.—*Gynandria Monandria.*

Brassavola Digbyana. This very singular plant was introduced from Honduras, by Mrs. McDonald, and by that lady given to E. St. Vincent Digby, Esq., with whom it flowered last July at Minterne, in Dorsetshire. Its huge yellowish white flowers are as sweet as those of *Aerides odoratum,* and the largest measure nearly three inches in diameter. The neck of the ovary, which is cuniculate in a remarkable degree, is full four inches long. The singular fringe that borders the lip is quite analogous to what occurs in *B. cucullata* and others, only it is here extremely extended, so as to give the flower quite a shaggy appearance.—*Bot. Reg.* 53-46.

Pilumna laxa. This new and very distinct genus of Orchids has been hitherto known only by the account given of it in the miscellaneous matter of the 'Bot. Register,' for 1844, No. 74, where, speaking of the present species, it is remarked, that its general appearance may be understood by its having been mistaken for a *Trichopilia.* Its flowers are produced in loose erect racemes, out of broad, obtuse, short, membranous, spotted bracts. The stalks and ovary are an inch and a half long; the latter with three very stout and strong ribs. The sepals and petals are a pale watery green, erect, linear-lanceolate, equal, faintly tinged with purple. The lip is cream-coloured, rolled round the column at the base, to which it is also united at the lower end. The column has a singular fringed hood, overlying the anther, and a nearly vertical stigma, closed in by fleshy inflected cheeks, In these circumstances it differs from Aspasia, to which the genus is nearly akin. The plant has very thin flat pseudo-bulbs, and leaves marked beneath with small purple spots. It was found in the woods of Popayan by Mr. Hartweg.—*Bot. Reg.* 57-46.

Cypripedium Irapeanum. A beautiful species with large yellow flowers, which in native specimens are upwards of six inches across. It looks like a gigantic form of the downy yellow Lady's Slipper (*C. pubescens*) of the United States. In soil and potting *Cypripedium Irapeanum* requires the same treatment as our common English and American species, but it is more tender than they are, and must be kept in a warm greenhouse. During the summer months, when it makes its growth and flowers, it requires a liberal supply of water. When the growth is completed, and the stems have died down, the plant must have its season of rest, and at this period it should be kept rather dry. In the summer months it should always be shaded from bright sunshine. It is found in a wild state near the town of Irapea, in Mexico.—*Bot. Reg.* 58-46.

CALENDAR FOR NOVEMBER.

At this period of the year, when the most of the beds in the flower garden are empty, or nearly so, it becomes necessary to consider what can be done for their improvement in the way of drainage, renewal of the soil, or otherwise. If a new garden is in course of formation, then it is desirable that due care should be taken for the thorough drainage of the beds; or if a garden already made be defective in that point, now is a good time to remedy the inconvenience. In either case the following observations may be found of some use.

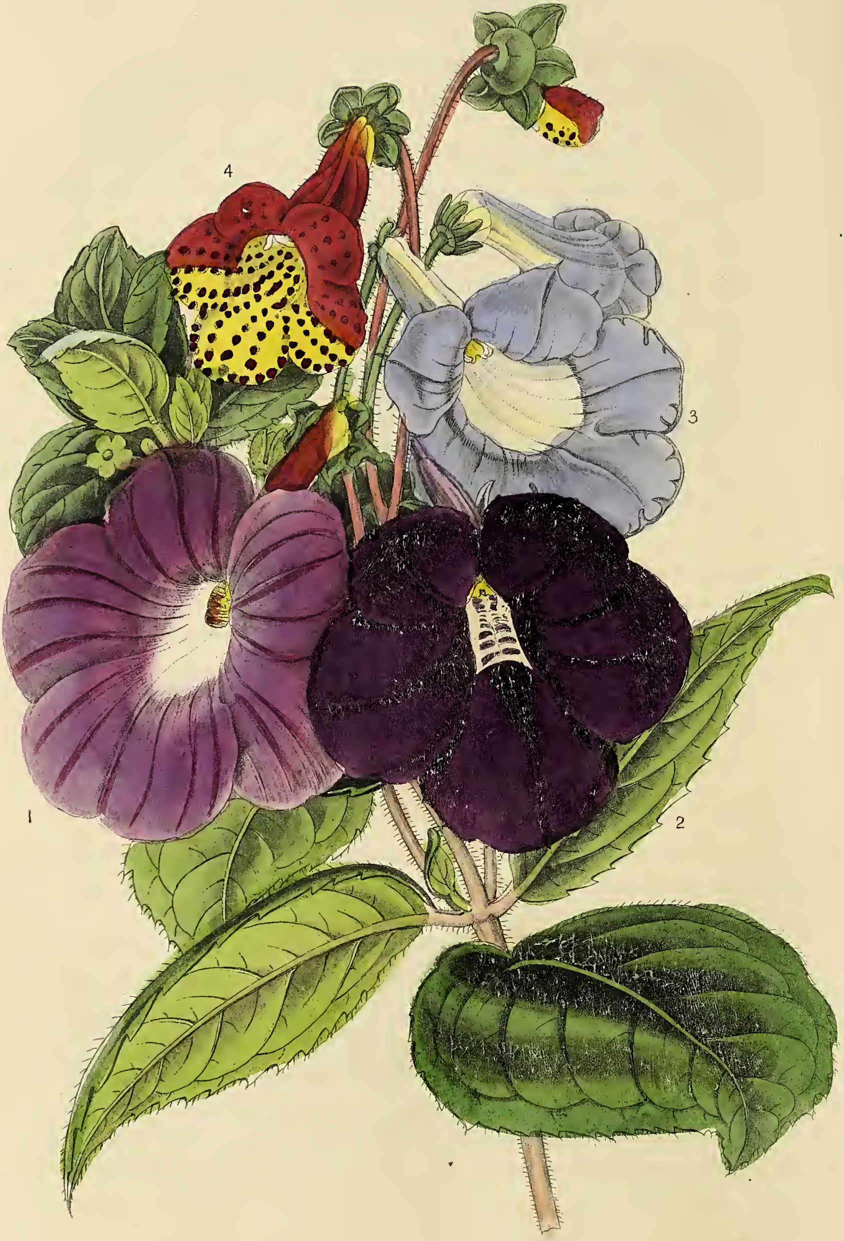
It should be constantly borne in mind that the greater number of the plants required to fill the beds in a modern flower garden are such as were, comparatively few years ago, considered as only in their appropriate places in a stove or greenhouse. And this view of the subject should not be lost sight of at the present day. In exposing such plants to the open air in sheltered and favorable spots, as soon as the external temperature is sufficiently high to admit of its being done with success, it is necessary to have them as completely under command as if they were still in pots and houses, and this can only be done by so preparing the beds as to render them as it were only pots on a larger scale. If this view of the case be near the truth, then a thorough system of drainage is the foundation on which all after operations must rest. This secured, it then becomes necessary to attend to a proper compost for the plants. The object to be attained in the present case is, to obtain the greatest quantity of brilliant flowers—not a luxuriant growth of leaf, as with cabbage and lettuce, or finely swelled fruit, as in the orchard; either of which latter points gained would be at the expense of flowers or plants, and not at all compatible with the intention aimed at. Therefore, to keep the plants under command, and prevent too luxuriant a growth, a comparatively poor soil should be used—poor, light, and porous—so that all moisture may pass rapidly off, and not remain too long in contact with the roots to injure or rot them in any way. A stiff soil is objectionable on account of the difficulty of working it, independent of its being unfit for the majority of the plants. Rough dung or other strong manures should also be avoided, as causing the plants to run to leaf instead of flower; and great care should be taken never to overload the compost with much manure of any description. If a light sandy soil be used, its management is much easier than any other, for, in the earlier part of the season, if the rains are heavy, they can pass freely through; and if the summer is as dry as is usual, the necessary watering will take more effect on such a soil than on one caked like a brick on the surface, until the heaviest waterings or rain will run off, and not penetrate to the depth of an inch. In such a soil, too, the application of manure, when necessary, is easily effected by using it in a liquid state, and applying it very sparingly. Many people apply liquid manures as freely as they do common water, and thus defeat the object they have in view. In China and Peru, where manures are expensive, it is usual to apply them in small quantities at different periods during the growth of the crops, so that they may receive the benefit of it at the times when the plants are most in want of it. As it is bloom that is the object in the present case, few plants ought to receive any stimulant other than water after they are once well established and have commenced flowering, and only a sufficiency of that to keep them from retrograding, as, if they once become luxuriant, they seldom give much satisfaction.

The flower garden should be kept very clean and free from fallen leaves or other litter, cutting down all plants as they go out of flower, and mulching the roots of the more tender sorts with fern, or any other light material, preferring such as have little manuring qualities in them. Partially prune and nail or tie up tender roses and other climbers, so as to protect them from high winds, and also so as to reduce them to as small a compass as possible in case they want further protection from frost. Re-arrange the herbaceous plants, if necessary, reducing them to proper sizes, and finish the planting of hardy bulbs as soon as possible. All digging, transplanting trees and shrubs, or new ground work, should also be forwarded as much as the weather will allow.

Have the heating apparatus in all the plant-houses in proper condition to be immediately used in case of sudden frost, or in case of continued wet weather, when a fire should be occasionally applied to the greenhouse and conservatory in the daytime, so as to dry the house, giving all the air possible while the fire is used. Attend very particularly to the watering, using no more than just sufficient to maintain the plants in good health. The temperature may sink as low as 40° at night.

The temperature in the stove may fall as low as 60° at night, but too great a range of heat should be avoided as much as possible at present, for fear of exciting many of the plants too soon. On the same account, the supply of water should be as limited as possible, so that the plants may be the better enabled to withstand the artificial heat they will have to endure when hard weather occurs. As a good deal of time must unavoidably be spent in doors at this season, the stove plants should in particular be well cleaned from scale, white bug, and all similar attacks; and they should also be well staked and formed into neat plants. Their tallies should also be replaced where necessary. Attention to these little points now will be well repaid in the busy season.

D. M.



Alfred Adlard Sc.

ACHIMENES.

1 GRANDIFLORA. 2 PATENS. 3 MULTIFLORA. 4 PICTA.

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ACHIMENES.

WITH AN ILLUSTRATION.

Since 1841, the genus of which we write has risen in consequence beyond almost any other in the same period: the introduction of species which has taken place, though not great in number, has added to our collections several perfect gems of first-rate excellence, which, from their characteristic easy culture, rapid increase, and real worth, have become so widely distributed as to be present everywhere that the least regard is had to the growth of plants.

In the year named the genus consisted of four species: the old *A. coccinea,* a native of Jamaica, known very generally since 1778; in 1840, the two species *rosea* and *pedunculata* were introduced from Guatemala, the first possessing much of the habit of *coccinea,* but with larger rose-coloured flowers, and the latter distinguished by its tall growing stems, large hispid leaves, and bright red flowers. These were followed in 1841 by the universally esteemed *longiflora,* also from Guatemala, and in 1842 by *grandiflora,* closely allied to the last, having rosy-purple flowers and a stronger habit, from Mexico, together with the beautiful and delicate *multiflora* from Brazil. An accident also introduced, in the same year, the long-haired *hirsuta,* with dull red flowers, from Guatemala. 1843 witnessed the importation of *picta* from Mexico, a truly splendid species, with bright red and yellow spotted flowers, and banded foliage with the rich gloss and substance of velvet, the dark green of which is enlivened with broad bands of a paler colour, giving them the appearance of being variegated. The pretty little *argyrostigma* followed, from New Grenada, a very dwarf plant, whose leaves are a dark green, spotted over with clear white dots, and having numerous small purple flowers, produced on erect spikes. A garden variety, having the character of *rosea,* but ornamented with large, brilliant scarlet flowers, was also made known about the same time under the name of *Beatonii;* and in 1845, another, having the same origin, was produced, bearing the name of *Lipmanni.* This has an evident derivation from *grandiflora,* having flowers somewhat smaller, and possessing a shade more of purple, which, with a regard to the habit of the plant, seem to point to *longiflora* as its other parent.

The present year has made us acquainted with another Mexican species, at least equal to the best previously known. This is the *A. patens*, represented in our accompanying plate, It is one which, notwithstanding the great favour in which its predecessors are held, is calculated, if not to supplant some, at least to be always included where any are grown. Its habit is dwarf, compact, and most profuse of flowers, and it is equally robust and as easily cultivated as the most common. The gardening world has incurred a considerable obligation to the Horticultural Society of London, had they never introduced finer plants than this and its congener, *A. longiflora*. Nor must the exertions of Mr. Purdie, late collector to the Royal Gardens of Kew, be overlooked in the award of praise for extending our knowledge of these lovely plants. To him we are indebted for many handsome individuals belonging to the same order, which now grace the truly national collection at Kew.

In a cultural view, Achimenes form part of a class which may be termed intermediate plants, their management partaking both of stove and greenhouse treatment. In a natural position, they are, from the characters of the countries they inhabit, subject to very great changes of atmospheric influences: at certain times a high temperature and the presence of an abundance of moisture excite them to an active development, which is followed by an interval of scorching dry weather, sufficient to reduce their tender succulent stems and leaves to an impalpable powder, and calculated to entirely annihilate such fragile forms, but for an admirable provision in their organization. On the approach of the dry season, the vitality of the plant retires to the underground receptacle provided for it, in the shape of numerous scaly bulbs, which, after maturity, separate from the parent stem, and become distinct individuals, containing within them the rudimental properties of the future plant, which, on the return of genial influences, are developed, to form, in their turn, other offsprings, and again fade.

These bulbs should be taken at an early period of the spring and placed in shallow pans, with a little sandy soil sprinkled among them to keep them from the light, and placed in a moderate hot-bed, where they speedily begin to grow, or at least, all that have sufficient vitality; this preliminary starting is to be preferred to immediate potting, because it gives an opportunity to remove dead or decaying roots, and in the subsequent operation of potting, none but the actually advancing bulbs need be placed in the soil, and those just where they will be required with the certainty of having the exact number of stems desired in each group. It has been found also advisable to grow them in deep pans rather than in pots, lest from too great a supply of food the future plants should, as these and many others will, instead of forming flowers, seek to extend themselves in some other way; many of the species will, when growing in rich soil, or on the receipt of too much water, form a number of small bulbs upon their stems in the place of flowers, and thus disappoint the expectations of the cultivator, who has erred in being too kind.

The soil most conducive to the desired blooming state in the plants is a mixture of fibrous peat, thoroughly decayed leaf-mould, and silver sand in equal quantities; the pans should be well drained with potsherds covered with moss, or the most fibrous portion of the compost, and after being filled with the soil, the plants should be inserted at a distance of about three inches from each other for the dwarf kinds, and nearly double the distance for the stronger growing species; the space recommended may at first appear somewhat limited, but all of them have a much finer appearance in dense masses than when seen separate; and we have found they do equally as well when thus close, with the advantage of a greater number of flowers consequent on the additional plants and the reduction in the amount of aliment. In the process of planting, the bulbs should be covered with about an inch of the mould, and as soon as they are done, a moderate hot-bed or a shelf in the stove should receive them; the time for potting must be determined by that at which the flowers are desired, and by a little management in this respect, a succession of blooming plants may be kept up from May till the following October. One of the species figured, *A. picta,* may indeed be easily had to flower throughout the year, and by potting late, say about Midsummer, it forms a most beautiful object in the stove throughout the winter.

It will be necessary to keep the plants in a growing temperature of about 65° or 70° till near the expansion of their blossoms, supplying them with plenty of moisture in the atmosphere, though but a moderate quantity will be necessary for the roots; small sticks should be placed to each stem as they advance, to keep them properly arranged, spreading them out one from another, in order to admit air to the leaves, lest by crowding, some of them become mildewed and rot off, and that the flowers may have room to display themselves. When the blossom buds are perceivable on the plants, the quantity of air admitted should be gradually increased, and a dryer state both of the atmosphere and the soil should prevail; and as it is necessary to shade them from strong sunlight, in order to assimilate their treatment with their natural positions, and also to preserve their beauty unimpaired, much attention should be given just at this time to the above-named subject, or a failure in the production of flowers may be apprehended. By the time they are fairly in a blooming condition, it will be advisable to remove them to a position where their beauty may be enjoyed; and as they do not insist on a high temperature at this period, or require other protection than such as is necessary to preserve it unimpaired, no better place can be desired for them than the greenhouse, where they will continue in perfection for a very long time. Nearly all the species are well suited for ornamenting the sitting-room, as they bear confinement remarkably well, and with only the accommodation of a common frame upon a slight hot-bed, and a window facing the south, several of them may be managed so as to yield a display superior to many plants usually regarded as excellent for the purpose.

The Wardian case or a glazed balcony also afford means both to cultivate and enjoy the loveliness of this beautiful tribe, than which none are more ductile, and a peculiar advantage belongs to them in the hybernation of the roots; most vegetable forms of the ornamental class are troublesome through the winter, where the means of cultivating them are limited to the appliances just named, inasmuch as the plants require most nursing when it is least easy to give it them.

Achimenes, however, from the circumstance of the stems dying off annually, and the vitality of the plants being preserved in the bulbs, incur no further attention than to be protected from frost, the removal of the pots to a closet or other place where they can be kept dry, being all that is required.

As soon as indication is given of the decline of activity in the plants, the application of water should be gradually suspended till the soil about the roots is left perfectly dry, and by exposing the pots to the sun the bulbs will soon become properly ripened and fit for storing; it is, however, far preferable to keep them in the soil in which they grew through the winter, than to remove them as is sometimes done, and as any dry place protected from frost will do for them, it is easy to observe this point, and then in the spring the roots will be found to turn out in excellent condition, and on being repotted will start with amazing vigour.

A little peculiarity attaches to one of the subjects of our plate, in the case of *A. multiflora*, which is by far the most tender of the family; it has been found necessary to keep the roots of this one in a slightly elevated temperature, even when the plant is at rest, or they lose much of their strength, nor should it be allowed to remain dormant so long as most others, and further, it will not bear the exposure found beneficial to other species, at any time; it is, as before remarked, naturally delicate and tender, and should therefore be treated accordingly.

ED.

RECEIPTS FOR THE DESTRUCTION OF INSECTS.

Crickets and cockroaches may be destroyed by mixing, over a slow fire, two ounces of arsenic with half a pound of suet or other fat; while it is hot, dip the ends of several sticks until they have a good coating, set these where the insects frequent, and they will soon disappear; the sticks may be easily removed in the morning to prevent danger to other animals.

Green flies are very troublesome on plants in spring and summer, when from their numbers, consequent on an increase exceeding a million-fold, they frequently threaten the entire destruction of a favorite specimen; the most effectual remedy is an application of tobacco smoke, which may be given without trouble, by placing the plant in a close case, box, or closet, and having ready some tobacco wrapped in paper previously soaked in nitre, this set on fire and inclosed with the insects, will continue to burn, and infallibly destroy them; the quantity of tobacco must be regulated by the space designed to fill; for such a thing as a single geranium shut in a box two feet square a moderate pinch is sufficient, half an ounce will fill a small room.

Wasps' nests may be destroyed without incurring danger by the following method: ascertain exactly where the entrance is, and if there should be more than one, stop the others up; in the evening when all the wasps are in, take a pint bottle, put two teaspoonfuls of spirit of turpentine into it, and insert the neck of the bottle into the hole, stopping it round closely with soft earth; the fumes of the turpentine will speedily kill all that are alive, and in a couple of days the nest may be dug out. This is an excellent method when the nest is in a bank, and otherwise difficult to get at. A squib, of two thirds sulphur and the remainder gunpowder, used in the same manner, will kill all that are in the hole in an hour. We have destroyed a great number by pouring boiling water on the nest when it has been in a position to allow it, but it requires a quick sight and some coolness, or the consequences may be rather unpleasant.

The appearance, comfort, and health of gold fish, when kept in glasses, may be greatly benefited by merely placing in the water a handful of moss; it has a pleasing effect, affords the fish a desired screen from strong light, and gives them an opportunity of rubbing off the disgusting parasite so frequently fatal to them.

In the autumn, and after heavy showers, lawns and paths are sadly disfigured by worms. In the endeavour to keep their air-drains open, they throw up a great quantity of soft mould. That by these means a positive benefit to the roots of plants arises cannot be denied; yet in some cases it may be desirable to prevent an accumulation of earth cast on the surface, or at least to reduce the number of these excavators: an ounce of corrosive sublimate dissolved in a gallon of water, and sprinkled over the place, will immediately cause every worm within its influence to come to the surface. As this mixture is poisonous, care should be taken in the using; nor should it be put into an iron pot until diluted, or the corrosive nature of the salt will materially injure. The proportion mentioned is quite innoxious to vegetation.

A decoction of elder-leaves, made by boiling a peck of leaves in a gallon of water till the liquor is black, is an effectual means of removing caterpillars from gooseberry or other trees; it may also be applied to cabbages, or other culinary vegetables, but should afterwards be well washed off, as it leaves a strong bitter taste.

That destructive little pest, the red spider, has given occasion for volumes of writing as to a certain means of eradication, but the only really effectual preventive to their attacks is a damp atmosphere; in cases where they have effected a lodgment, an application of steam twice a day should be kept up till they are dispersed: it may be said that sometimes vapour of this kind will commit injury, but it must be remembered, that the insects are continually and increasingly doing so.

Sulphur sprinkled on the pipes or flues, when they are hot, has been recommended, but to be of any detriment to the insects, it must be used in such quantity as to be also injurious to the plants, and it is well known that an overdose will take off every leaf in the house.

Earwigs and woodlice are among the worst of nocturnal depredators in a garden, and are only to be checked by catching and condemning to actual execution; they feed chiefly at night, and retire to some secluded place on the approach of day, anything which offers them the desired seclusion may be used as a trap, such as hollow sticks, a small flowerpot reversed on the end of a stake, pans filled with moss, and a variety of other means which will suggest themselves, may be employed.

Ants are sometimes annoying, not so much on account of what they destroy, as from their habit of intruding where they are least desired. A bone placed in a basin, and sunk on a level with their track, will catch thousands: in the garden they may frequently be observed journeying to and fro all in one path; if a hole be made with a stick, and a phial placed in it, so that the neck is level with the surface, numbers may be taken, for they never turn aside, but walk directly into the trap.

E. D. P.

HINTS TO EXHIBITORS.

In the leisure of the winter months, it is a good custom to compare progress, and make arrangements for improved practice and more extended endeavours in the next season, for, without a due settlement of the necessary preliminaries at a proper time, an irremediable confusion arises, of itself sufficient to mar the most strenuous efforts. The exhibitor's first concern is, therefore, now to examine the merits of his collection, and endeavour by judicious additions to strengthen his prospect of future success; and, in order to assist as far as possible in this important consideration, we have prepared the following remarks, noted down in our visits to the principal Metropolitan Exhibitions of the past season.

A want of novelty may perhaps be observable in the lists subjoined, but our design is rather to show the novice what he should possess to be certain of having a really useful selection, than, by rushing into an extended recommendation of new and untried things, bring disappointment and discouragement on his best efforts. The plants mentioned may, therefore, be regarded as such only that have an established reputation, and have been generally adopted; indeed, a great proportion are esteemed so highly as to be present in nearly every group, and a few at every show. The figures attached to the several names are intended to represent the proportionate number of times the plant was exhibited last year, from which a pretty correct idea of its estimated consequence may be inferred. They must not, however, be taken for the exact number, but in a relative sense, for occasionally a dozen specimens of the same plant are seen. This, together with their repeated appearance, has been considered in the forming of our average.

Among miscellaneous plants the following were most prominent:

Aphelexis humilis, 2, splendens, spectabilis, grandiflora, 3.

Achimenes longiflora, 3; grandiflora, 3; patens, multiflora, 2.

Azalea Indica alba, 6; ledifolia, variegata, 5; leucomegiste, lateritia, 4; phœnicia, 4; Danielsiana, 2; fulgens, 2.

Allamanda cathartica, 2.

Boronia serrulata, 4 ; anemonæfolia, 3 ; viminea, 2.

Clerodendron splendens, squamatum, 3 ; fallax, 4 ; Kæmpferii, 4.

Coleonoma pulchrum, 2.

Dipladenia crassinoda, 3, of rather limited distribution.

Dillwynia splendens, 2 ; glyciniflora.

Eriostemon buxifolium, 3 ; cuspidatum.

Epacris miniata, limited ; grandiflora, 5.

Euphorbia splendens, at every show.

Erica Cavendishii, 8 ; Sprengelii, limited ; tricolor, 6 ; tricolor elegans, 4 ; tricolor Wilsonii, limited ; propendens, 2 ; fastigiata lutescens, 2 ; ampullacea major, 4 ; depressa, 4 ; jasminiflora alba, 5 ; Massonii, 3 ; metulæflora, 2 ; M. bicolor, 3 ; ventricosa alba, 3 ; V. incarnata, V. breviflora, 4 ; V. eximia, V. superba, 4 ; V. coccinia minor, 6 ; Dunbarriana, intermedia, 3.

Gompholobium splendens, 2 ; Hendersonii, 2 ; barbigerum, 2 ; polymorphum, 3.

Ixora coccinea, 8 ; crocata, 2.

Leschenaultia formosa, 10 ; biloba nana, 3 ; Baxteri.

Phœnocoma prolifera, 3.

Pimelea spectabilis, 4 ; decussata, 5 ; linifolia, 3 ; Hendersonii, 3.

Rodoletia speciosa, 6 ; longiflora, 2.

Stephanotis floribundus, at nearly every show.

Tropæolum tricolorum, 3 ; grandiflorum, 6.

Veronica speciosa, 3 ; salicifolia, 2.

Vinca rosea, 6 ; alba, 4.

As a matter to be supposed, there were very many other plants exhibited, but, being seen only at intervals, we have not inserted them, regarding those mentioned as superior. Among florists' flowers we have in particular classes more novelties which may be considered desirable ; and, in justice to the new varieties, we must remark, the comparative absence of some which do not figure very highly may be accounted for by their scarcity.

Of Roses, those most frequently seen were Armosa, General Allard, Eugene Beauharnais, Archduke Charles, Alcine, Cramoisie supérieure, La Tour d'Auvergne, Boula de Nanteuil, Paul Joseph Richelieu, Comtesse Lacipede, Duval, Brennus, Madame Hardi, Madame Laffay, Coupe d'Hébé, General Lamarque, Beauty of Billiard, Las Cases, Maria Leonidas, Persian Yellow, William Jesse, Comte d'Eu, La Reine, Duchess of Sutherland, Bourbon

Queen, Pierre de St. Cyr, Comte de Paris, Délices de Plantier, La Pactole.

Pelargoniums. Ackbar, 2; Arabella, 2; Apollo, 4; Aurora, Comte de Paris, 4; Constellation, 3; Conflagration, 3; Duchess of Sutherland, 3; Desdemona, 2; Duke of Cornwall, 8; Erectum, 10; Hebe, 5; Hebe's Lip, 3; Isabella, 2; Katinka, 3; Lady Sale, 5; Lady Prudhoe, 4; Madeline, 6; Marc Antony, 2; Mustee, 3; Priory Queen, 4; in one instance from Mr. Parker, perhaps the finest specimen ever seen, measuring upwards of ten feet in circumference, and a mass of flowers, afterwards presented to Her Majesty; Queen of Beauties, 4; Rosalie, 2; Rosetta, 3; Rosy Circle, 5; Sir R. Peel, 4; Sunbeam, 2; Sylph, 6; Sunrise, 6; Unit, 4.

Pansies. Diamond, 3; Jehu, 4; Hamlet, 3; Star, 5; Regulator, 2; Dido, 3; Juno, 2; Isabella, 3; Victory, 3; Nymph, Duke of York, 3; Pizarro, 3; Tom Pinch, 4; Hero of Bucks, 3; Optimus, 3; Azurea, 3; Pelops, 3; Ne Plus Ultra, 3; Mary Jane, 3; Curion, 3; Purity, 2; Ploughboy, 2; Eclipse, 3; Hunt's Wellington, 3; Pitho, 2; Euterpe, 2; Daughter of St. Mark, 3; Arethusa, 3; President, 3.

Tulips. Fabin's Triomphe Royale, 4; Holme's King, 2; Catalani, 4; Aglaia, 3; Polyphemus, 3; Vestris, Optimus, 3; Claudiana, 2; Rubens, 4; Platoff, 2; Triomphe de Lisle, 3; Catafalque, 3; Violet Alexander, 2; Cerise à belle forme, Malibran, 2; Marshal Soult, 2; Louis Quartorze, 3; Michael Angelo, 2; Pompe Funèbre, 3; Roi de Siam, 3.

Carnations. Puxley's Prince Albert, 3; Brooks's Flora's Garland, 4; Wilmer's Solander, 4; Mansley's Beauty of Woodhouse, 5; Ely's William Caxton, 2; Colcut's Brutus, 3; Ely's Mungo, 3; Martin's Contender, 2; Splendid, 3; Cartwright's Rainbow, 3; Bucknall's Ulysses, 2; Puxley's Queen Victoria, 2; Chadwick's Brilliant, 3; Holme's Count Paulino, 3; Twitchett's Don John, 4; Mansley's Robert Burns, 2; Barnard's Duke of Roxburghe, 2; Lee's Colonel, 2.

Picotees. Brinklow's Lady Chesterfield, 4; Barnard's Mrs. Barnard, 6; Gidden's Sir R. Peel, 2; Brinklow's Masterpiece, 3; Garret's Lady Dacre, 3; Barraud's Cornelius, 3; Wilmer's Princess Royal, 3; Dickson's Trip to Cambridge, 4; Burrough's Duke of Newcastle, 2; Green's Queen Victoria, 2; Crask's Queen Victoria, 3 ; Burrough's Miss Bevan, 2 ; Sharp's Agitator, 2 ; Brinklow's Conductor, 3 ; Hogg's Lady Ackland, 2 ; Sharp's Cleopatra, 3 ; Brinklow's Purple Perfection, 3 ; Dickson's Sophia (new), Jessop's Sir William Middleton, 4.

PINKS. Cyclops, 2 ; Omega, 3 ; Hodge's Gem, 3 ; Tom Davey, 3 ; White's Warden, 3 ; Ward's Great Britain, 2 ; Melona, 3 ; Henbrey's Diamond, 2 ; Gay Lad, 4 ; Little Wonder, 4 ; Creed's President, 4 ; Henbrey's Delight, 3 ; Wilmer's Queen Victoria, 3 ; Duchess of Kent, 4 ; Lady Flora Hastings, 3 ; Dr. Daubeny, 2 ; Holmes's Coronation, 4 ; Queen of England, 3 ; Davy's Britannia, 3 ; Dr. Coke, 3 ; Hodge's Mars, 2 ; Colonel Baker, 2 ; Masterpiece, 3 ; Bunkill's Queen, 2.

AURICULAS. Lee's Colonel Taylor, 2 ; Page's Champion, 6 ; Waterhouse's Conqueror of Europe, 4 ; Privateer, 4 ; Dickson's Apollo, 2 ; Unique, 2 ; Taylor's Glory, 3 ; Fletcher's Mary Anne, 3 ; Oliver's Lovely Anne, 3 ; Dickson's Earl Stanhope, 3 ; Clegg's Crucifix, 2 ; Lord Lascelles, 3.

DAHLIAS. Admiral Stopford, 4 ; Lady St. Maur, 4 ; Mrs. Shelley, 3 ; Antagonist, 4 ; Essex Triumph, 4 ; Duchess of Richmond, 3 ; Beeswing, 4 ; Bathonia, 3 ; Cleopatra, 3 ; Sir E. Antrobus, 4 ; Victory of Sussex, 3 ; Nonpareil, 3 ; Rembrandt, 2 ; Vivid, 2 ; Marquis of Bath, 3 ; Queen of Roses, 3 ; Northern Star, 3 ; Great Western, 3 ; Bermondsey Bee, 4 ; Essex Bride, 2 ; Biondetti, 4 ; Princess Radzeville, 4 ; Marquis of Cornwallis, 3 ; Victory of Sussex, 3 ; Widnall's Queen, 3 ; Athelete, 3 ; Blue Bonnet, 2 ; Princess Royal, 3 ; President of the West, 3 ; Pickwick, 4 ; Optimus, 3 ; Indispensable, 4 ; Fulwood Hero, 3 ; Standard of Perfection, 4 ; Marquis of Aylesbury, 3 ; Miranda, 2 ; King of the West, 2 ; Gloria Mundi, 2 ; Lady Leicester, 2 : Queen of Perpetuals, 3.

CAMELLIAS.

I have been watching with much interest the effects of this extraordinary season as developed among Camellias. About the period of the great storm the flower-buds made a most astonishing progress, and those of the later succession, which at the time were standing in the open air, appeared as though they would expand before Christmas; in fact, the whole arrangement, in regard to a successional display of flowers, seemed about to be broken up altogether; some few specimens, not hitherto particularly forward, were so much affected as even to exhibit their flowers in September; in other instances the bloom-buds elongated, and at length burst into a leafy growth, and numerous cases of second shoots occurred, both from branches having flower-buds and those without. Imagining all this to proceed from the large amount of electricity with which at the time the atmosphere was surcharged, and consequently beyond remedy, I was content with merely observing its action, allowing the plants to remain in their respective stations, without alteration, except a somewhat reduced supply of moisture. This state of things continued till the end of September, when the bustle of housing the collection caused the Camellias to go unheeded for a fortnight, at which time, on looking them over, I was surprised to find them exactly in *statu quo;* they had not advanced a jot, nor did they evince the least progress till near a month after, since when they have gone steadily on, resuming their respective places as correctly as could be wished, without retaining more than the slight traces apparent in the additional branches of the very extraordinary condition they were previously in. In the absence of all likely circumstances, I can attribute it to nothing but atmospheric influences, and am the more inclined to do so, because of the simultaneous action, both indoors and in the open air, which seemed to continue just so long as the exciting cause was present, and on its cessation, a reaction occurred, which brought the plants back again to their previous state as nearly as possible; they had advanced immensely at an unnatural time, and, as might have been expected, when it ceased were in an exhausted state, requiring a long rest to renovate their strength. Whether anything advantageous in a cultural sense may be deduced from the circumstance I am not prepared to say, but it may certainly be regarded as additional evidence of the influence of electricity on the vital action of the vegetable kingdom. While on this subject, I may, perhaps, be allowed to offer a gentle admonition to the young cultivator of this splendid family. The majority of Camellias are now in what is called "full bud;" many will shortly be opening their flowers; but from the increased demand for flowers during the festival season approaching, it is quite likely many anxious inquiries will be made as to "when can we have a Camellia bloom;" and from an equally anxious desire to gratify the request, it is also probable that extra means will be thought of to hasten its consummation:—it will only be to force them a bit; however, here let me tell those who thus think it easy to abridge the time between the formation of the bud and the expansion of the flower, that they are in error; for Camellias, will not bear forcing *now*, and so surely as they are put into an elevated temperature, just so certainly will the buds drop off. Was it possible, I would not allow the slightest variation in the supply of either heat or moisture, from the time the buds are first discoverable till after the blooming, for so important is a uniform treatment through this stage of the plant's progress, that I do not hesitate to ascribe the greater proportion of failures to a deviation from this rule, and in confirmation may refer to frequent complaints of the falling of the buds, when the plants are taken from a greenhouse to the sitting-room: cases of this kind are so common as to come within the observation of every one interested in the consideration, and can be accounted for in no other way. It is better, then, "to preach patience to their longings," than to destroy all expectation by a premature haste; but the way to have early flowers is to force the plants immediately *after* they have bloomed; they will then not only bear it, but receive an actual benefit from stimulus. Let them be repotted into a loamy soil if the specimens are full grown, or a mixture of peat and loam if younger plants, and place them in a gradually rising temperature of from 50° to 65°, such as is afforded by a vinery, and they will form new growths at an early period, on which the buds will be seen before those treated in the usual greenhouse manner have scarcely started; and, as a necessary consequence, the flowers of such will be considerably in advance through the following season. By varying the introduction to heat, so as to let it run over a couple of months, with a very moderate collection, it will be easy to have a continued succession of flowers throughout the winter and early spring months; but in no other way can it be done.

HORTULANUS.

DESCRIPTIVE LIST OF NEW PLANTS.

PROTEACEÆ.—*Tetrandria Monogynia.*

Stenocarpus Cunninghami. A very handsome tree, from Moreton Bay, in Australia, where it was originally discovered by the late Allan Cunningham, in 1828. It has a slender trunk, branched and bearing the ample and glossy evergreen, deeply-lobed leaves at the extremity of the branches. The flowers are borne in candelabrum-like umbels, lateral from an old branch, or sometimes terminal; in the umbel before us, consisting of five rays, of which four are in a whorl, horizontal (as respects the axis), the fifth central and vertical, terete, clothed with deciduous golden down, articulated upon the main rachis; the extremity curved downwards, and the very apex dilated into a flattened and angled disc, the edge of which bears about thirteen or fourteen partial rays or pedicles of the umbel, radiating like the spokes of a wheel and with the utmost regularity, all inclining a little upwards, each bearing a single downy flower, and spreading almost exactly horizontally all on the same plane. Before expansion the perianth is club-shaped, tawny or golden-green, the underside of the club or head yellow-green. The mode of expansion of the five linear-clavate sepals is very curious, and adds greatly to the beauty of the flower when all are alike expanded. The colour within is a most brilliant orange-scarlet, the pistil the same, the clubbed apices of the sepals and the large stigmas only being a golden-yellow. At first the three outer segments of each flower become deflexed, all hanging down around, and at a certain distance from the axis, and at the same time the pistil suddenly becomes bent in the middle and rises upwards, so that the richly-coloured stipites are erect, the style standing forward, and the whole circle of brilliantly-coloured pistils forming a corona to the umbel; the fourth sepal within the crown is the last to separate from the stigma, and collectively, for a time, they form a sort of inner corona; they soon become flaccid and deciduous, when the pistils remain like the skeleton or frame of some beautiful piece of basket-work; the lower half vertical, the upper half inclining outwards nearly horizontally. The lower half is constituted by the stipes, which has a long adnate deep blood-coloured scale at the base. The plant requires to be grown in a greenhouse.—*Bot. Mag.* 4263.

CYTANDRACEÆ.—*Didynamia Angiospermia.*

Æschinanthus pulcher. This splendid plant was sent from Java to Mr. Veitch, of the Exeter Nursery, by his collector, Mr. T. Lobb. It is chiefly distinguished from *A. Lobbianus* by its broader leaves, shorter tube of the calyx, quite glabrous, and very much more exserted tube of the corolla; the calyx of this is green, slightly tinged and spotted with red, and the corolla is a vivid rich scarlet outside and a pale yellow in the interior of the tube.—*Bot. Mag.* 4264.

Æschinanthus miniatus. The researches of Mr. Veitch's collector in Java have brought to our knowledge some remarkable new *Æschinanths,* which had escaped the previous observation of persons employed in horticulture. Among them is the present. This plant is readily distinguished by its very short, dish-shaped calyx, which has scarcely any distinct marginal lobes, and its vivid vermilion-coloured flowers, with a yellow star in the throat. They approach in form and size the blossoms of *Æ. Boschianus,* but are produced even more numerously.—*Bot. Reg.* 61-47.

GOODENOVIEÆ.—*Pentandria Monogynia.*

Leschenaultia arcuata. A singular and truly handsome species of Leschenaultia, exceedingly different from every other known one, having copious, spreading, decurved branches, with innumerable branchlets, almost every one of which is terminated with a large red-purple and yellow flower. Raised by Messrs. Lucombe, Pince, and Co., at their extensive nursery, Exeter, from Swan River seeds, sent by Mr Drummond. It is a greenhouse plant, and the flowers have a good deal the appearance of those of the large shrubby *Polygalæ* of South Africa, but here they are exceedingly numerous upon a small plant. Flowers in August.—*Bot. Mag.* 4265.

MYRTACEÆ.—*Icosandria Monogynia.*

Eucalyptus Preissiana. A handsome tree-like shrub, with the foliage fragrant (like that of the myrtle) when bruised, and flowers of rather a large size; rendered more conspicuous by the copious yellow stamens spreading far beyond the diameter of the cupula. It is a native of Western Australia, whence seeds have been sent from Dr. Preiss, of Swan River, to the Royal Gardens of Kew. Our plant flowered in the summer of 1846, when it had attained a height of five feet. It thrives in a cool greenhouse, and in the summer is the better for standing in the open air.—*Bot. Mag.* 4266.

LABIATÆ. *Didynamia Gymnospermia.*

Scutellaria incarnata. From the rich collection of Mr. Veitch, of Exeter, who received seeds from Professor W. Jameson, of Quito, gathered on the western declivities of the Andes. It has deep rose-coloured flowers, and being readily cultivated, will probably be found a good bedding plant; it requires to be kept in a greenhouse through the winter.—*Bot. Mag.* 4268.

RANUNCULACEÆ.—*Polyandria Polygynia.*

Clematis crispa. This is an old plant lately reintroduced to our gardens by Messrs. Maule and Sons, of the Stapleton Road Nurseries, Bristol, who raised it from North American seeds, marked "a new *sweet-scented* clematis," and well it deserves that name, for its fragrance is most agreeable, especially towards evening. It flowers incessantly during all the summer, that is to say, from May to October, and it seems likely to go on blooming as long as it remains in a growing state; the flowers are large, of a pale purple, and it is in all respects a charming hardy species.—*Bot. Reg.* 60-47.

SCROPHULARIACEÆ.—*Didynamia Angiospermia.*

Torenia concolor. This plant was sent to the Horticultural Society from China, by Mr. Fortune, from whom we have the following memorandum: "This plant was found growing in marshy ground, on the mountain of Hong Kong, nearly two thousand feet above the level of the sea, and reached the garden of the Horticultural Society, in July, 1844. In China it flowers in the autumn. After the flowering season is past, the dry weather sets in, and the stem and leaves shrivel up and remain in this state during the winter months, when the temperature is sometimes down very near the freezing point. During the hot and damp summer months it grows again with great vigour, and forms its flowers in great profusion. In this country it should be treated as a half stove plant, and grown in a moist atmosphere during the summer. As it is a trailing plant it requires a trellis. It grows readily in any free soil, and is easily multiplied by cuttings. The flowers are entirely a deep blueish purple.—*Bot. Reg.* 62-47.

CINCHONACEÆ.—*Pentandria Monogynia.*

Gardenia Devoniana. This glorious plant is a native of Sierra Leone, whence living specimens were imported by Mr. Whitfield. It is, perhaps, the finest of its noble race. The flowers are nearly eleven inches long, pure white at first, but after a time changing to a light straw colour, and look much like those of a large white lily. Mr. Glendinning, of Turnham Green, who flowered the plant in September last, says: The varieties of these plants by no means decrease their value or the interest they possess; on the contrary, no collection of the least pretensions can be without them: their extraordinary conspicuous flowers, together with their perfume, will give them a very high claim. The Cape Jasmine, it is well known, can be had to bloom at a variety of seasons; so can these more gorgeous species, with quite as little trouble. To accomplish this, let them be placed, after flowering, in a high temperature of at least 80°, and charged with moisture. Plunge them in bottom heat, and keep the syringe upon them two or three times a day; by this means rapid growth is obtained. When this is accomplished, gradually expose them to a lower temperature and plenty of light, when their blossom buds will be set. A cool pit or greenhouse may then receive them; and shortly before their flowers are required, they may successively be removed to a house of medium temperature, when their blossoms will freely expand.—*Bot. Reg.* 63-47.

ROSACEÆ.—*Icosandria Polyandria.*

Potentilla M'Nabiana. A very beautiful variety raised by Mr. Menzies, gardener to H. Edwards, Esq., Hope House, Halifax, two years ago; it is a hybrid, between *P. atrosanguinea* and *P. leucochroa;* the flowers are large, and extremely brilliant in colour, vivid carmine, and buff, and are borne in great numbers by well-established plants on numerous strong stems, which do not attain, at the outside, a greater height than about two feet six inches; younger plants send up stems that bear blossoms when not more than a foot high. The foliage, in the cases of both radical and caulescent leaves, is ample and profuse.—*Pax. Mag. Bot.*

ORCHIDACEÆ—*Gynandria Monandria.*

Vanda Batemanni. The honour of discovering this splendid thing is due to M. Gaudichaud, who met with it in the Moluccas —of introducing it to this country, to Mr. Cuming, who sent it to Mr. Batemann, with whom it produced its magnificent sceptre on the stove at Biddulph Grange, in June and July last. It is a very large, erect plant, with remarkably thick aerial roots, produced after the custom of its kindred: sword-shaped, curved, two-ranked, hard leaves, averaging two feet in length, and a still longer spike of some score of flowers, each full two inches and a half across; flat, leathery, and long enduring. But it is not alone for their size that these flowers are so especially worthy of notice. Their colour is indescribably beautiful. If you look them in the face, they are the richest golden yellow, spotted all over with crimson; but when seen from behind, they are wholly a vivid purple, fading away at the edges into the violet of *Cereus speciosissimus*. So that regard them which way you will, there is nothing but the gayest and richest colours to be seen.—*Bot. Reg.* 59-47.

GLOSSARY OF TERMS USED IN BOTANICAL DESCRIPTIONS.

Glomerate. Collected together, so as to form a close head or cluster.

Glottis. A tube, or throat.

Glume. Floral organs of the grasses.

Glutinous. Remarkable for an adhesive, viscid exudation.

Graniform. Resembling the ears of corn.

Granular. Covered with small tubercles, like grains.

Gregarious. Growing closely together.

Grumous. Irregularly clubbed, or knotted.

Gyrose. Turned round at the extremity, like a sickle.

Hastate. Halbert-shaped.

Herbaceous. A class of plants whose stems are only of annual duration, but whose roots continue at least two years.

Hermaphrodite. Consisting of, or combining the two sexes.

Hexagonal. Hexangular, six-sided.

Hexasepalous. Composed of six divisions of petals.

Hilum. The point of union between the placenta and a seed, indicated by a mark, or scar.

CALENDAR FOR DECEMBER.

If we examine the component plants in an ordinary shrubbery, no matter whether in a large or small place, we find the number of distinct species surprisingly few; and to this rule the exceptions are so few as hardly to be worthy of consideration. That an improved taste on this point is gaining ground is true, but it is at a very slow rate. The planting of public arboretums, where the plants are kept properly named, has no doubt done good in this way; and no new park should be laid out, either in the neighbourhood of London or elsewhere, without this point being specially attended to. Until within these few years, and even now to a considerable extent, few nurserymen thought of forming a collection of trees and shrubs, but contented themselves with growing those most in demand, and thus new or rare plants were seldom seen, and still less often inquired for. But let us hope this state of things is rapidly passing away, and that many of the fine things introduced of late years will become as common as any of our old favorites.

In planting shrubberies, especially in small places, where large masses are neither proper nor practicable, there is no reason why nearly every tree or shrub should not be different, and thus present so many different objects of interest, instead of the dull monotonous repetition of laurels and lilacs, of which so many shrubberies are chiefly composed. Why should two common of hawthorns be allowed, when there are so many better varieties itself, independent of the finer and larger species from the south of Europe and North America? Why have we so many common lilacs, as is usually the case, when so many varieties now exist, besides species of considerable interest? With the Syringa, or Mock Orange, again, it is the same, while numerous other species of Philadelphus and Deutzia are to be had as cheap. Who would think of ordering a hundred Roses of one sort for a small place, when he can have as many varieties for the same money? and so it is with trees and shrubs.

As this is a proper time for planting, as long as the weather is sufficiently open, it may be as well to state that almost the only extra trouble or expense incurred in having a great variety of trees and shrubs, instead of adhering to the old plan, is in properly labelling them. This, perhaps, is best done in a private garden by a series of numbers stamped on lead, and attached to the plants by strong copper wire, leaving a large loop, and taking care that the tree does not get damaged in its after growth by the loop becoming too small. There are comparatively few, with the exception of bog earth plants, that will require other preparation of the ground than the trenching and pulverization of the soil, which is equally necessary in planting the commoner sorts.

The flower garden should be kept as neat as the weather will permit, and good protection from heavy rains should be provided for the bulb beds. Any tender plants, protected by mats or otherwise, should be exposed to the free circulation of air whenever the weather permits, so as to prevent damp. The same should also be attended to with regard to plants in cold pits, frames, or similar structures, and no more water should be applied than enough to keep them from absolutely withering.

In the green-house and stove attend to last month's directions, especially as regards the application of water.

D. M.

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